SITE MANAGEMENT PLAN
BARC CERCLA PROGRAM 2018-2019

BELTSVILLE AGRICULTURAL RESEARCH CENTER
BELTSVILLE, MARYLAND

FINAL

Prepared for:

U.S. Department of Agriculture
Agricultural Research Service
Beltsville, Maryland

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LIST OF ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
Apex	Apex Environmental, Inc.
APHIS	Animal and Plant Health Inspection Service
AR	Administrative Record
ARS	Agricultural Research Service
BARC	Beltsville Agricultural Research Center
BDRLF	Beaver Dam Road Landfill
BERA	Baseline Ecological Risk Assessment
BHNRC	Beltsville Human Nutrition Research Center
BMT D&P	BMT Designers & Planners
CDP	Chemical Disposal Pits
CDR	Covenant Deferral Request
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CMT	Continuous Multichannel Tubing
COC	Contaminant of Concern
CPLF	College Park Landfill
CSWRP	Composting Stormwater Retention Pond
DCE	Dichloroethene
DCGL	Derived Concentration Guideline Level
DDT	Dichlorodiphenyltrichloroethane
DDx	DDD, DDE, and/or DDT
DNAPL	Dense Non-aqueous Phase Liquid
DOD	U.S. Department of Defense
DOJ	U.S. Department of Justice
DP	Decommissioning Plan
EC/MIP	Electrical Conductivity/Membrane Interface Probe
EE/CA	Engineering Evaluation/Cost Analysis
ENTECH	ENTECH, Inc.
EPA	U.S. Environmental Protection Agency
EPIC	U.S. EPA Environmental Photographic Interpretation Center
ERA	Ecological Risk Assessment
ESA	Environmental Site Assessment
FDA	U.S. Food and Drug Administration
FFA	Federal Facility Agreement

LIST OF ACRONYMS AND ABBREVIATIONS

FS	Feasibility Study
FY	Fiscal Year
HHRA	Human Health Risk Assessment
HRS	Hazard Ranking System
IAG	Interagency Agreement
LLRBS	Low-Level Radiation Burial Site
LLRW	Low-Level Radioactive Waste
MCL	Maximum Contaminant Level
MDA	Maryland Department of Agriculture
MDE	Maryland Department of the Environment
mg/L	Milligrams per Liter
µg/kg	Micrograms per Kilogram
µg/L	Micrograms per Liter
MIP	Membrane Interface Probe
NASA	National Aeronautics and Space Administration
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NERA	Northeast Regional Association of State Agricultural Experience Station Directors
NFA	No Further Action
NPL	National Priorities List
NRC	Nuclear Regulatory Commission
NTCRA	Non-Time Critical Removal Action
OC	Organic Chemicals
OU	Operable Unit
PA	Preliminary Assessment
PA/SI	Preliminary Assessment/Site Inspection
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethylene
PMP	Performance Monitoring Plan
PP	Proposed Plan
ppb	parts per billion
ppm	parts per million
PRB	Permeable Reactive Barrier
PRP	Potentially Responsible Party
RA	Remedial Action
RBC	Risk Based Concentration

LIST OF ACRONYMS AND ABBREVIATIONS

RD/RA	Remedial Design/Remedial Action
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SI	Site Inspection
SMP	Site Management Plan
SSP	Site Screening Process
SVOC	Semi-Volatile Organic Compound
TAL	Target Analyte List
TBD	To Be Determined
TCE	Trichloroethylene
TCLP	Toxicity Characteristic Leaching Procedure
TCRA	Time Critical Removal Action
TM	Technical Memoranda
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
VBLC	Vegetative Bio-Reactive Landfill Cover
VCP	Voluntary Cleanup Program
VOC	Volatile Organic Compound
WSSC	Washington Suburban Sanitary Commission
WMATA	Washington Metropolitan Area Transit Authority

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1. INTRODUCTION

This document presents the Site Management Plan (SMP) for Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) activities at the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), Beltsville Agricultural Research Center (BARC) in Beltsville, Maryland.

As part of the Federal Facility Agreement (FFA) between the U.S. Environmental Protection Agency (EPA), Region III and BARC, the development of an SMP is required to serve as the management tool for planning, reviewing, and establishing priorities for all CERCLA activities at the facility. Section XI of the FFA requires the SMP to include scheduling of activities for five fiscal years (FY), annual updating of scheduled activities, and review and approval by the EPA, Region III. This SMP presents the prioritization and the estimated schedule of future investigation and remediation activities to be completed at BARC. These schedules and deadlines are presented for FY 2019 through 2023 in Section 3, as required by the FFA.

To ensure that the SMP functions as a planning document for both ongoing and planned future activities, the SMP is updated on an annual basis. Annual updates are also necessary to revise activity priorities as work progresses and additional information becomes available. Each annual update amends, revises, and/or supplements the SMP, as appropriate, to ensure that the plan addresses events that will occur at BARC over the following five FYs.

To address the progress that has been made at BARC over the years of the CERCLA program, the SMP has been shortened to remove projects that were discussed or completed in earlier SMP versions, and to maintain focus on current and future CERCLA activities.

This SMP addresses potential areas of concern (AOCs) that were identified at BARC as part of CERCLA investigations and reconnaissance activities that remain incomplete or are ongoing. Initial activities were largely conducted in the 1990s, and are discussed in more detail within this document, as necessary. Subsequent investigations and cleanup activities are part of a collaborative process between EPA and ARS that follows the FFA and CERCLA requirements.

1.1. Purpose of the SMP

The SMP is a five-year planning document that is used as a management tool for planning, reviewing, and establishing priorities for all CERCLA response activities at BARC. For SMP purposes, a FY is defined as the yearly time frame used by the U.S. Federal Government. FYs commence on October 1 of a given calendar year and end on September 30 of the following calendar year. The use of the SMP allows for adjustment in scheduled activities without modifying the FFA for reasons such as federal

budgetary constraints, changes in scope of investigation/remediation activities, or other unanticipated events. Per the FFA, the BARC SMP must, at a minimum, include the following:

- Identification of each BARC operable unit (OU) or AOC.
- Description of the nature of proposed CERCLA actions at each OU and AOC.
- Schedules and deadlines for all activities and response actions that are ongoing, planned, and/or proposed over the course of the ensuing five FYs, including enforceable deadlines and target dates.
- Schedules contained in approved Work Plans.
- Projected schedules for response activities planned for subsequent FYs (i.e., more than five years into the future). [Note: Projected schedules will be used only for planning purposes and will not be enforceable under the FFA until approved by EPA and incorporated as deadlines into an amended SMP].

1.2. Facility Description

BARC, as depicted in Figure 1-1, currently encompasses an area of approximately 6,600 acres in the northwestern portion of Prince George's County, Maryland. Approximately 95 percent of the facility is located on a single contiguous piece of property while two smaller parcels are located south and east of the Interstate 95/495 interchange. The present-day boundary of the facility is irregular, but the perimeter of BARC can generally be outlined by the following transportation routes: Interstate 95 to the west; Sellman, Odell, and Powder Mill Roads to the north; Laurel Bowie Road (Maryland State Route 197) to the east; and Interstate 95/495 and Greenbelt Road (Maryland State Route 193) to the south. Several significant north/south transit corridors transect the property, the largest of which are U.S. Route 1 (Baltimore Avenue) and the CSX Railroad right-of-way in the west, and the Baltimore-Washington Parkway (Maryland State Route 295) that cuts through the central portion of BARC. The relative location of these various transportation routes and corridors are presented in Figure 1-2.

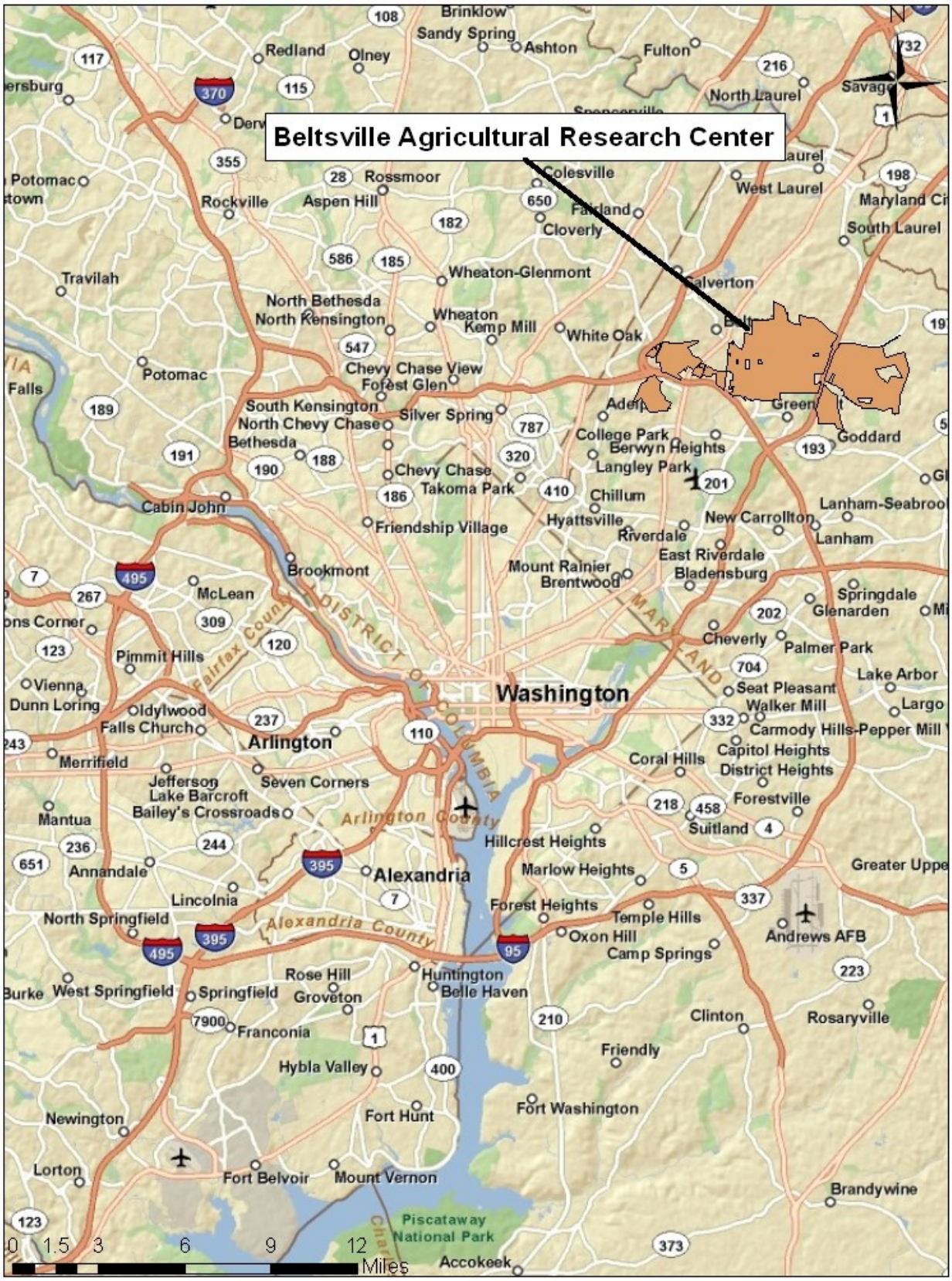

Figure 1-1. BARC Regional Map

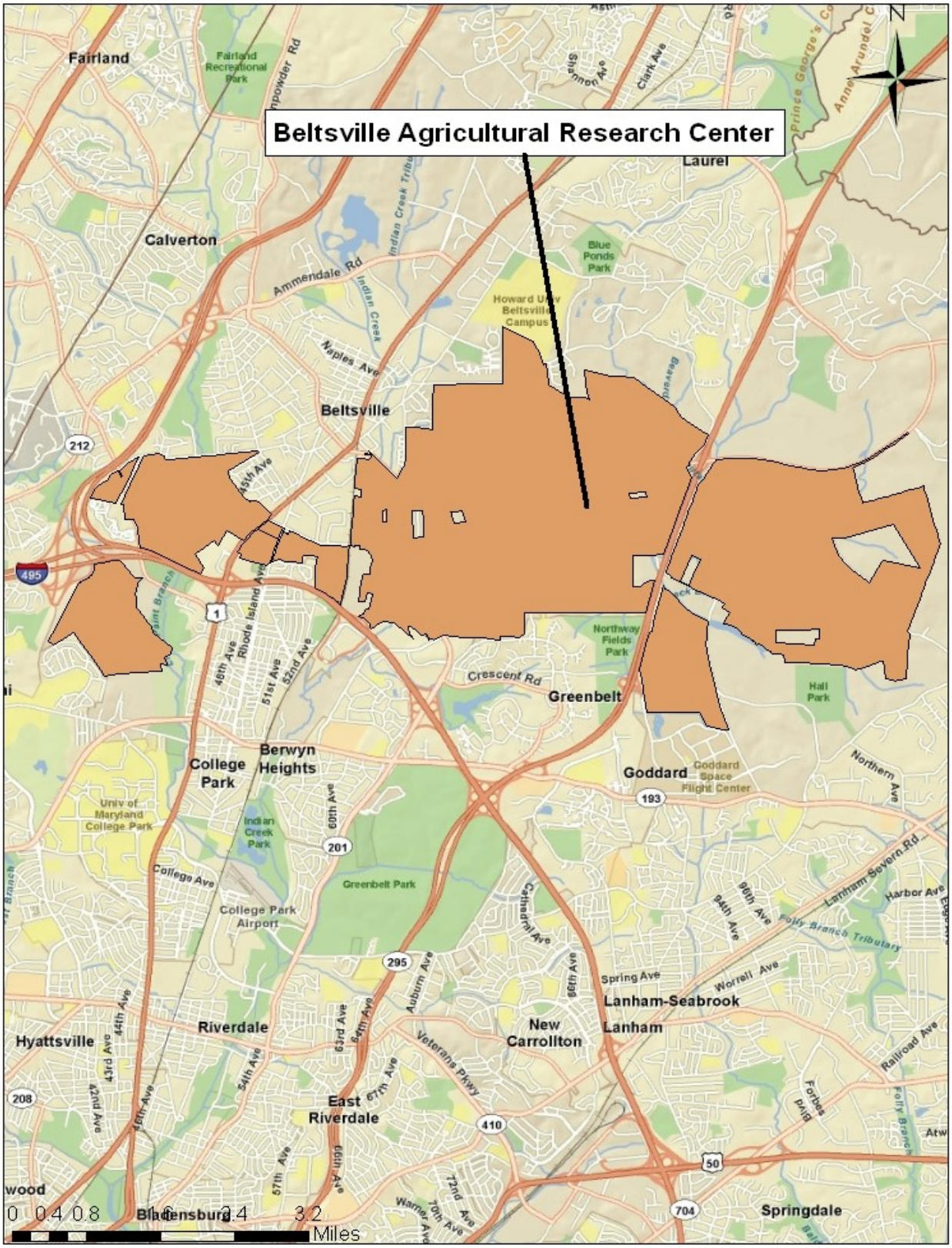

Figure 1-2. BARC Vicinity Map

1.3. History of BARC

The BARC facility dates to 1910 when USDA purchased a 475-acre farm to conduct research on animal husbandry, dairying, and animal diseases. Additional land was purchased over the next few years to expand the research facility, which ultimately grew to encompass approximately 12,000 acres. Since its peak size, BARC has transferred portions of the facility to other federal agencies with varied non-agricultural missions.

Historically, BARC was comprised of two separate entities known as East BARC and West BARC. The division of the facility was created by the CSX Railroad right-of-way that continues to pass through the facility. Additionally, BARC was historically divided into five separate administrative units known as "Farms." These units are specifically identified as North, South, Linkage, Central, and East Farms. The evaluation of Farms, as well as watersheds within the larger BARC facility, play a role in delineating areas for evaluating risks as part of BARC's CERCLA program.

BARC operations are managed by USDA-ARS, and the facility has hosted several agencies. These agencies have included the EPA, the U.S. Food and Drug Administration (FDA), the Department of Defense (DOD), the Department of Justice (DOJ), and the National Aeronautics and Space Administration (NASA). Present federal tenants include the U.S. Geological Survey (USGS), Patuxent Wildlife Research Center, Animal and Plant Health Inspection Service (APHIS), Maryland Department of Agricultural (MDA), and the Northeastern Regional Association of State Agricultural Experiment Station Directors (NERA).

1.4. BARC CERCLA Regulatory History

The BARC facility was first identified as a potential CERCLA site by EPA Region III on January 21, 1980 (EPA, 1980). In February 1988, in accordance with CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), BARC was placed on the Federal Facilities Docket, and required to conduct a Preliminary Assessment and Site Inspection (PA/SI). In May 1991, USDA-ARS submitted BARC's PA/SI Report to EPA. This report identified 44 potential AOCs, of which 16 were recommended by the contractor for further SI study (Apex, 1991). Following the completion of the PA/SI, USDA-ARS determined that several of these areas required more detailed study; therefore, a series of facility-wide investigations were initiated.

In February 1993, EPA's Environmental Photographic Interpretation Center (EPIC) conducted an analysis of historical aerial photographs from the 1930s through 1992 and identified an additional 48 potential AOCs.

In May 1993, EPA proposed BARC for inclusion on the National Priorities List (NPL) based on a release to surface water from a three-acre landfill known as the Biodegradable Site. BARC was evaluated using EPA's Hazard Ranking System (HRS) (EPA, 1993), and on May 31, 1994, BARC was officially placed on

the NPL. After being added to the NPL, an additional 74 potential AOCs were identified through an independent aerial photographic analysis (ENTECH, 1997a), a 1997 field reconnaissance (ENTECH, 1997b), and a desktop data collection study (ENTECH, 1997c), bringing the total sites for consideration to 166 (Figure 1-3).

Section 120(e) of CERCLA requires the responsible federal agency to enter an Interagency Agreement (IAG) or FFA with EPA when a federal facility is placed on the NPL. USDA-ARS entered an FFA with EPA on March 2, 1998 (EPA and USDA, 1998). The FFA went into effect at the close of the public comment period on April 16, 1998. The FFA, which defines activities and schedules "for the most expeditious completion . . . of all necessary remedial action (RA) at [the] facility," governs CERCLA response at the facility, and mandates the establishment of this SMP. Since 1998 BARC has made progress to investigate, assess, and restore identified sites while meeting EPA requirements.

1.5. SMP Organization

The remainder of this SMP contains four additional sections:

- Section two summarizes current ongoing CERCLA response activities as well as those that are proposed for the near-future.

- Section three provides discussions regarding assumptions used to develop CERCLA activity schedules; primary and secondary CERCLA documents; and the schedule summaries for ongoing and planned activities for FY 2017 through 2020.

- Section four provides references to reports, work plans, and master planning documents identified in the SMP.

- A tabular summary and status of all AOCs, with BARC Farm specific AOC status maps, is provided in Appendix A.

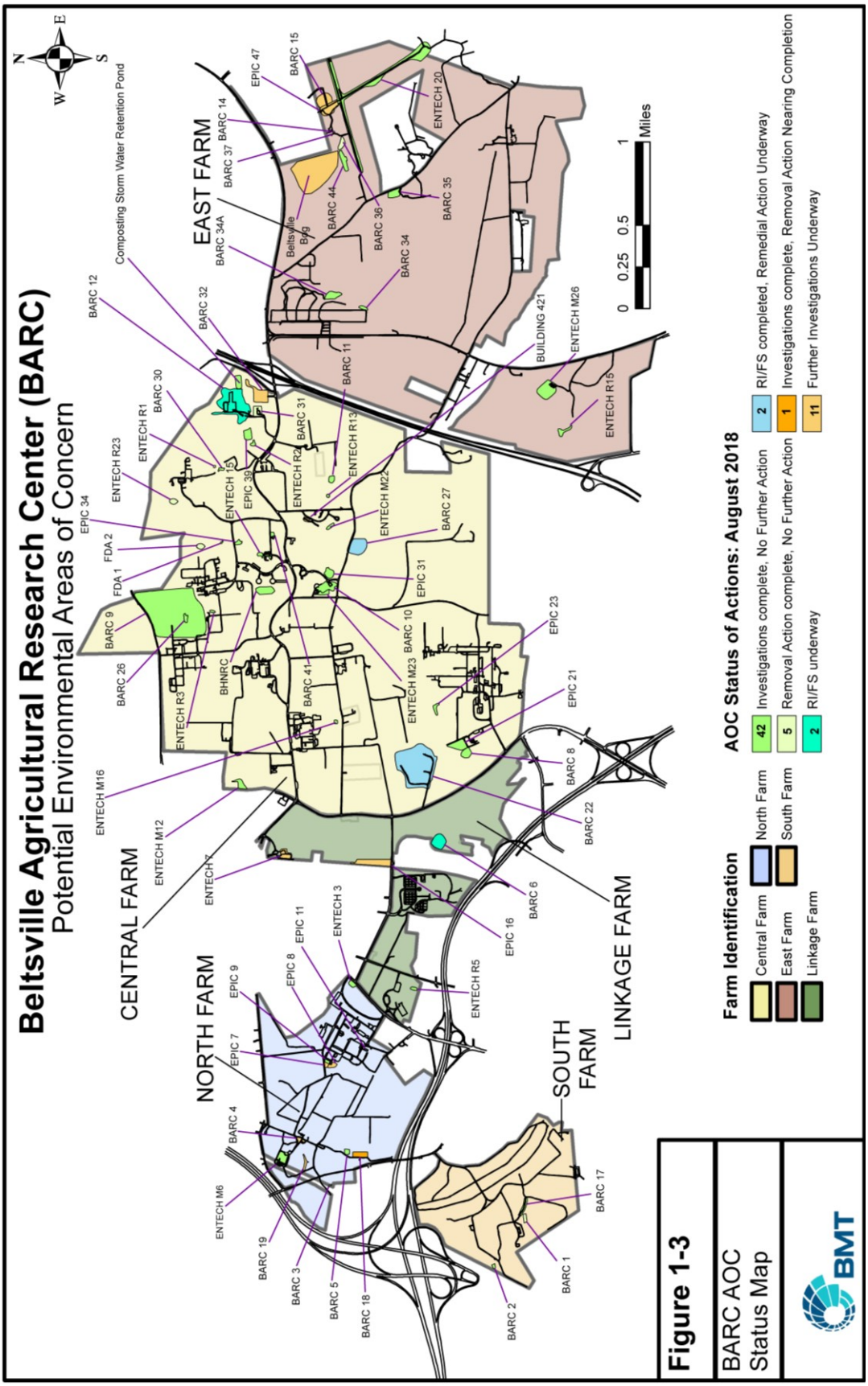

Figure 1-3. BARC AOC Status Map

2. ONGOING PROJECTS AND PLANNED ACTIVITIES

USDA-ARS is currently performing a full range of site screening, restoration, and monitoring activities, consistent with FFA requirements. CERCLA response activities have concluded or are underway at several higher priority AOCs. The subsections that follow summarize investigation and cleanup activity at individual AOCs or groups of AOCs at BARC.

Site Screening Process (SSP) field investigations that include human health risk screening are the primary mechanism by which BARC AOCs are investigated. This process typically involves the collection and laboratory analysis of environmental media (e.g., soil, groundwater, surface water, and sediment) in conjunction with a screening risk assessment using EPA methods and criteria. SSP investigation reports are reviewed by EPA and ARS, and decisions are jointly made regarding whether an AOC is designated for a "no further action" (NFA) decision under CERCLA, or if further investigation, and/or removal action or other administrative action is required. Through 2017-18, SSP studies have been completed for all BARC AOCs, except where Remedial Investigation/Feasibility Study (RI/FS) programs were initiated.

To address potential ecological exposures, a facility-wide Baseline Ecological Risk Assessment (BERA) (BMT Entech Inc., 2006a) and ecological Technical Memoranda (TMs) were finalized for individual or groups of AOCs for each farm. SSP follow-on investigations at selected AOCs are being completed, as described in Section 2.1. RI/FS activities and site investigations are being conducted concurrently with human health and ecological risk evaluations. AOCs where RI/FS programs and/or site investigations were active during FY 2018/19 include: BARC 6, BARC 12, BARC 18, BARC 15, BARC 22, BARC 27, BARC 32, EPIC 47, EPIC 7, EPIC 8, and the Compost Stormwater Retention Pond (CSWRP). Progress on the SSP sites are provided in Section 2.1, and progress and activities for the RI/FS program sites are described in Section 2.2. Section 2.2.8 includes BARC 4 & 19 sites that have entered the RI/FS site process, but for which RI/FS activities have not yet been initiated.

2.1. SSP Investigations

The FFA initially identified a total of 166 AOCs for further evaluation; however, after review of data, discussions between ARS and EPA Region III eliminated 107 of these AOCs from further review, leaving a total of 59 AOCs for investigation as part of the SSP program. The 59 AOCs initially identified included two AOCs (BARC 6 and BARC 18) that were not subject to the SSP because it was determined before the SSP program began that they would require more rigorous investigations (i.e., RI/FS). Three additional AOCs (BARC 12, BARC 22, and BARC 27) were also designated for RI/FS consideration after initial evaluation. EPA maintains the authority to include additional sites as AOCs based on new data and can shift sites from SSP to RI/FS status with ARS concurrence. Separate sampling programs were conducted by SSP groupings, organized so that higher-priority AOCs were generally investigated earlier.

2.1.1. New SSP AOCs

Based on additional findings, observations, and other data, the sites described below were added for further investigation for Human Health and Ecological risks, after the initial 59 sites were identified. These sites, and any potentially new sites, are brought into the SSP program for preliminary investigation and assessment. Any new SSP site may go on to no action closure, removal actions, or require further investigation under the SSP or RI/FS programs.

In October 2001, the Beltsville Human Nutrition Research Center (BHNRC) was added as the 60th AOC in BARC's CERCLA Program and was given the AOC identifier "BHNRC". The BHNRC facility is located in Central Farm, behind Building 307. Soil samples were initially collected from the construction site in September 2001, to confirm the excavated soil would be suitable to use as clean fill on other areas of USDA property. During the test excavation for the foundation, scrap metal and portions of rusted 55-gallon drums were discovered. Following additional sampling and the designation of the BHNRC AOC, the site became part of the SSP. Upon completion of the 2002 SSP report, this AOC was designated for "No Further Action," and has been formally closed.

In early 2005, a transformer storage area near Building 421 was identified as the 61st AOC due to the potential for releases of polychlorinated biphenyl (PCB) fluids. Building 421 is located in Central Farm, off Biocontrol Road. Over 50 surplus transformers were located on concrete pads near the building. Sampling of the transformers, concrete pads, and adjacent soils was conducted in September 2005. The sampling program failed to identify PCBs in environmental media; however, DDx pesticide compounds were detected in soils at the site. An SSP report containing the findings from the investigation and a risk screening were prepared and submitted to EPA. A removal action was completed in 2008 to remove pesticide contaminated soils from the site. This AOC has been designated for "No Further Action" but has not yet been formally closed as EPA is still reviewing this site.

In 2009, a Compost Storm Water Retention Pond (CSWRP) was identified as the 62nd AOC and was originally included with the Chemical Disposal Pits (CDP) site. The CSWRP was constructed to contain runoff from composting research activities that were conducted adjacent to the CDP AOC in the 1970s. The associated contamination that was identified in pond sediment was determined to be unrelated to contamination at the CDP site. A standalone SSP report has been produced for this site and the site is expected to receive a "No Further Action" designation.

The "Beltsville Bog" site, the 63rd AOC, was added during the investigation of BARC 36 AOC. The Beltsville Bog site is located on East Farm and is situated north of a utility corridor and adjacent to a tidal forested area located immediately northwest of the BARC 36 AOC. Overland flow from the BARC 36 AOC flows northwest through the ravine and enters a culvert that carries it under the utility corridor, ultimately discharging to the edge of the forested area. Pesticides historically detected in this area are suspected to

have originated on the BARC 36 AOC. A non-time-critical removal action (NTCRA) was conducted at the BARC 36 AOC in 2010 to address pesticide contamination in surface and subsurface soil associated with that AOC. Discussions with EPA in 2015 supported the elimination of phragmites, an invasive wetland species, at the site to protect the bog and adjacent wetlands from further encroachment. It was also agreed upon that tilling the soils and adding a compost amendment to mitigate the contamination would be acceptable, based on the levels of residual dieldrin in soil. A "No Further Action" report has been prepared for this site but plans for implementing the remedy have not been completed, and the site is not yet formally closed.

2.1.2. SSP Area of Concern Cleanups and Removals

For non-RI/FS sites once actionable human health and/or ecological risks are identified; appropriate remedies or responses, if any, will begin to address those risks using CERCLA Removal Action procedures. These procedures require the preparation of an Engineering Evaluation and Cost Analysis (EE/CA) to support risk management decisions. To date, both time critical removal actions (TCRAs) and non-time critical removal actions (NTCRAs) have concluded at eleven (11) AOCs (Figure 2-1):

- BARC 1 – Experimental Wood Treatment Area - NTCRA (arsenic)
- ENTECH R1 – Structural Ruin - NTCRA (lead and PCBs)
- ENTECH R23 – Rose Garden - NTCRA (DDT and dieldrin)
- Building 421 – Transformer Storage Pad - NTCRA (DDT)
- BARC 14 – Airport Mixing Pad - NTCRA (DDT)
- BARC 36 – Airport Scrap Pile – NTCRA (DDT and dieldrin)
- BARC 37 – Waste Oil Pit NTCRA – NTCRA (DDT)
- BARC 31 – Building 442 Scrap Area – NTCRA (PCBs)
- BARC 32 – PCB Storage Area – TCRA (PCBs)
- FDA 2 – Overgrown Clearing on Edge of Woods & Animal Pen – NTCRA (lead and zinc)
- BARC 4 – Building 33 Former Pesticide Washdown Area -- TCRA for DDT, and Dieldrin Hot Spots exceeding risk criteria
- BARC 19 – NTCRA DDT, and Dieldrin Hot Spots exceeding risk criteria

These remedial actions were primarily implemented to address risks to human and ecological receptors from contaminants in soil, and to prevent migration and further contact/exposure in the environment. Some of these AOCs may require further investigations or remedial actions, notably the BARC 32, and BARC 4 and 19 AOCs that are entering a full RI/FS program. In addition to the AOCs identified above, additional surface cleanups have been conducted to remove non-regulated wastes and debris (e.g., demolition and construction debris) improperly disposed of at BARC.

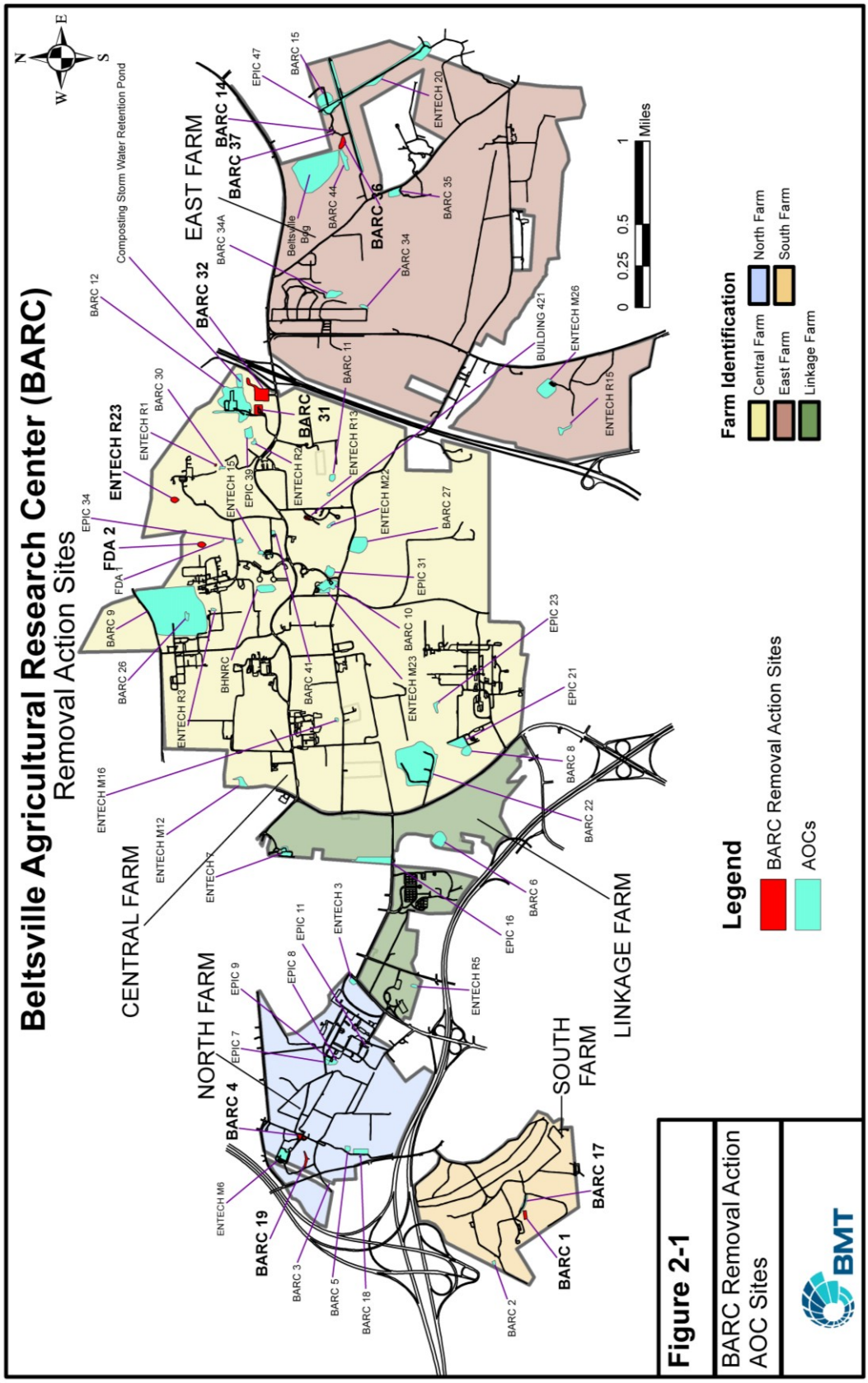

Figure 2-1. BARC Removal Action AOC Sites

2.1.3. SSP Area of Concern Closeout Procedures and Status

Non-RI/FS AOCs are removed from further consideration through an administrative process that requires the issuance of a "Decision Document" that completely summarizes the investigations undertaken at the AOC and includes consensus statements and signoffs by EPA Region III and ARS representatives. Through calendar year 2018, a total of 42 of the 63 total AOCs have received formal closeout approval, and Decision Document reports issued and signed. Decision Documents for these sites have been inserted to the BARC CERCLA Administrative Record (AR).

An additional five AOCs are anticipating EPA concurrence on an NFA designation. Decision Documents have been prepared for these AOCs: FDA 2, ENTECH M26, ENTECH R2, CSWRP, and ENTECH R23. Although Decision Documents have been submitted, EPA has not yet completed its review and sign off. Completion of these DDs will bring the total number of sites designated for NFA to 47.

Additional sites still in the SSP phase include the following six (6) AOCs. These AOCs and their status within the SSP are identified as:

- EPIC 16 – NE Corner of Sunnyside Avenue and CSX Rail Line. EPA is considering an NFA decision. On hold pending completion of the BARC 6 analysis (see section 2.2.1).
- Airport AOCs (BARC 15 & EPIC 47) – Airport Test Droplet Area. Groundwater investigation for trichloroethylene (TCE) has been completed. A pilot study to address slight MCL exceedances in groundwater using a passive permanganate system in shallow groundwater was initiated in March 2015; however, discussions with EPA suggest current concentrations may not warrant further remedial efforts.
- Beltsville Bog – On hold. ARS to address dieldrin in soil through tilling and compost cover.
- Entech 7 – On hold. An after-action summary report of all investigations and removal actions was prepared and submitted to EPA for review, and comments were provided to ARS in 2016. Personnel changes at EPA put this site on hold, as ARS is working to prepare a revised analysis of the site investigation information which will be provided to the new EPA RPM. This will highlight that the observed groundwater contamination is from an upgradient source.
- Building 421 – Remedial efforts to address pesticides in soil were completed by ARS, and an After-Action Report submitted to EPA, EPA is continuing to review the report; however, ARS is expecting an NFA designation.

Although NFA decisions are anticipated for these AOCs, ARS and EPA have not completed technical discussions for these sites. An overview and summary of the status of all 63 AOC's is provided in Appendix A. The comprehensive list includes any follow-on investigations, remedial actions, and site closure activities required. The status of each of the four RI/FS sites and the Site Investigation (SI) at the Low-Level Radiation Burial Site (LLRBS) is summarized in the sections following.

2.2. Remedial Investigation and Feasibility Study Program Sites

The following sites are part of the RI/FS program at BARC, which investigates sites with greater potential risks, or more complex restoration requirements, as defined in the FFA. EPA provides with ARS additional guidance and oversight on RI/FS projects. These sites generally have more intensive environmental investigations and reviews, greater regulatory reporting requirements, and increased required pubic involvement. The RI/FS site summaries are presented below in greater detail than the SSP sites.

2.2.1. RI/FS at the Biodegradable Site (BARC 6)

The Biodegradable Site (BARC 6) is located south of Sunnyside Avenue and west of Edmonston Road in the BARC's Linkage Farm. It is adjacent to (west of) Indian Creek and a strip of land defined as non-tidal wetlands. The site was used from the 1940s to about 1975 as a general refuse disposal site for BARC-generated wastes.

A PA/SI was conducted for the Biodegradable Site from April 1990 through October 1990 (Apex, 1990) after inspections by EPA Region III had identified the BARC 6 site as a potentially hazardous waste site. The subsequent final report was submitted in December 1990. The purpose of this investigation was to determine the nature and degree of the potential threat posed to human health and the environment by this disposal area, and to determine under what authority RA's would be conducted. During this process, documents and aerial photographs were collected, compiled, and reviewed, and personnel interviews were conducted. In addition, site-specific data was collected during on-site investigations and sampling. During the Apex limited investigation, hazardous substances, consisting of Volatile Organic Compounds (VOCs) tetrachloroethylene (PCE), and TCE, were detected in groundwater, adjacent wetlands, and in Indian Creek at concentrations that exceeded those levels considered safe for aquatic life. Their data indicated that there were VOCs present in upstream and downstream water samples collected from Indian Creek. The information collected during this Environmental Site Assessment (ESA) supported the need for performing a site-wide pre-remedial investigation of BARC in accordance with CERCLA.

In 1993, ARS decided that the removal of the contents of the Biodegradable landfill was the best way to remove the source(s) of contamination. The waste materials were removed in 1993 and the terrain in the immediate area was restored to its approximate prior condition. A remediation report provided a summary of events that occurred during the remediation of the Biodegradable Site (June to November 1993). The remediation included the excavation, sampling and analysis, characterization, transportation, and off-site disposal of over 70,000 tons of soil, waste, and debris (Rust, 1994). All material was characterized as "suspected hazardous, contaminated waste/non-hazardous," or "clean municipal solid waste and debris". All material was transported and disposed of based on Toxicity Characteristic Leaching Procedure (TCLP) results.

In May 1993, EPA proposed BARC for inclusion on the NPL based on a release to surface water from BARC 6, and on May 31, 1994, BARC was officially placed on the NPL. After BARC was placed on the

NPL in 1994, transfer of ownership of this land to Washington Metropolitan Area Transit Authority (WMATA) was completed via a Covenant Deferral Request (CDR) (CERCLA 120(h)), which allows transfer of the property before completion of the RA. The CDR process was needed because offsite groundwater contamination has impacted the site, and residual groundwater contamination remains. The BARC 6 site remains part of the parcel that was transferred to WMATA; however, ARS retains responsibility for any cleanups that may be required under CERCLA to address contaminants that existed on the transferred parcel at the time of transfer.

Ten (10) additional monitoring wells were installed and groundwater investigations at the Biodegradable Site (and other select AOCs) were initiated in 1997 to establish new baseline information on existing monitoring well integrity, and groundwater contaminant plume conditions (ENTECH, 1998a).

When BARC was added to the NPL, the extent of the potential involvement of an upgradient source was not fully understood. The results of the RI report identified a groundwater plume of chlorinated solvents originating at the upgradient W. P. Ballard (Ballard) property, a former dry-cleaning supplier and moving downgradient in groundwater associated with the Biodegradable Site. An FS report was developed in April 2008 that examined various remedial alternatives to address contaminated groundwater at Biodegradable Site. Remedial alternatives considered included installation of additional “detection” wells, long-term monitoring of groundwater near the site, and land-use and groundwater use restrictions to prevent future population exposures (Figure 2-2).

Four new monitoring wells (MW22-25) were installed in June/July 2010 to further evaluate the extent of upgradient contamination and evaluate groundwater movement. During this well installation, one monitoring well (MW15) was replaced with a new well of similar construction to MW22-25. Joint well gauging and sampling was carried out in August 2010 with consultants representing the upgradient source to collect data from all offsite monitoring wells and all existing BARC 6 wells. A report was issued on the investigation (BMT Entech, 2010). Additional joint well gauging and sampling events with Ballard were also completed in 2012 (BMT D&P, 2012) and 2014 (BMT D&P, 2014a).

A groundwater model was developed that simulates groundwater flow through from the Ballard property to the BARC 6 AOC area. The modeling results were presented in a draft report that incorporates groundwater monitoring data collected from monitoring wells surrounding the Ballard property, the BARC 6 AOC, and Indian Creek. Groundwater modeling also evaluates the extent to which an upgradient source was responsible for the contamination associated with the Biodegradable Site. In addition to the BARC 6 AOC, groundwater at the EPIC 16 AOC was probably impacted by the persistent historical releases at the Ballard property. A revised report, that incorporates groundwater monitoring data from past joint sampling events, provides evidence that the BARC 6 AOC is not a source of detected VOCs in groundwater (BMT D&P, 2016).

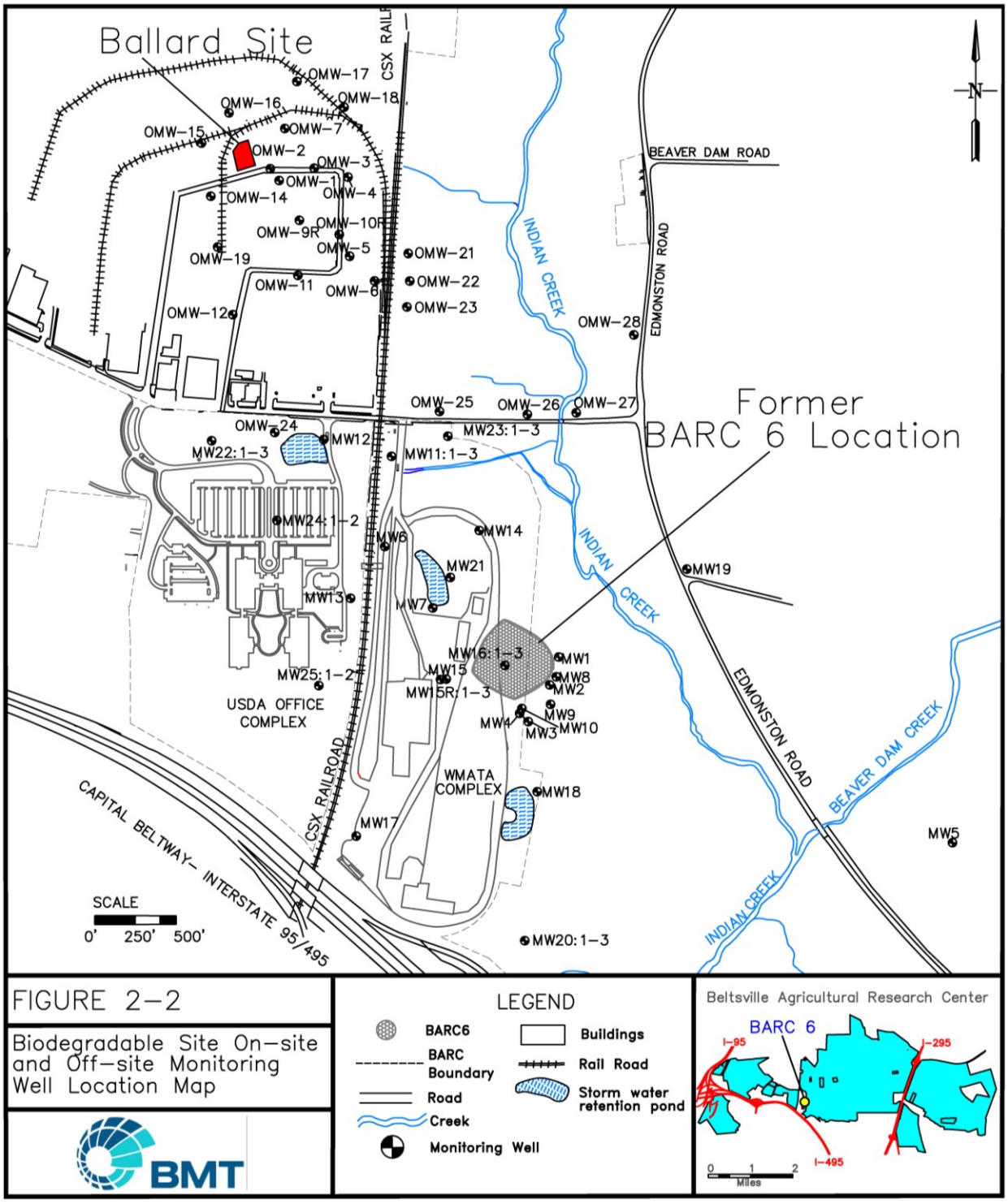

Figure 2-2. Biodegradable Site On-site and Offsite Monitoring Well Location Map

The upgradient Ballard property is subject to investigations and cleanup under the Maryland Department of the Environment (MDE) Voluntary Cleanup Program (VCP) to address contamination (including potential Dense Non-aqueous Phase Liquid [DNAPL]) resulting from their releases. EPA and ARS agreed that it was impractical to implement any active or passive groundwater remediation project until this source is addressed, and a more complete determination of responsibility for groundwater contamination associated with the ARS property was made. In addition, MDE has not determined offsite cleanup criteria and this would likely have a significant impact on any system under consideration. Although the FS initially identified institutional controls and continued long-term monitoring as the most desirable remedy, findings from the FS Report were set aside until EPA could review the findings of the groundwater modeling report.

Discussions between ARS and EPA in 2016 regarding the modelling report have indicated broad agreement that BARC is not responsible for the groundwater contamination at the site. The Remedial Investigation (RI) Report for the Biodegradable Site has been updated to reflect current site knowledge and the conclusions from the groundwater model completed in 2016 (BMT, 2016). Utilizing the most recent 2014 groundwater data, the updated RI Report also included an updated human health risk assessment, additional data concerning the upgradient source and a conceptual site model (CSM) for the site, and the groundwater model. Once the RI/FS is approved, a public meeting will be held for the no action alternative and then a 'No Action' Record of Decision (ROD) will be prepared for the site.

2.2.2. Site Investigation and Decommissioning of the Low-Level Radiation Burial Site (BARC 18)

The LLRBS is an inactive burial site used from the late-1940s to the mid-1980s for the disposal of low-level radioactive waste (LLRW). In addition to radioactive isotopes, buried substances include scintillation fluids (isotopes and organic fluids); metal, glass, and plastic objects; animal carcasses; and animal wastes (Apex, 1993).

The LLRBS is located in BARCs North Farm, approximately 1/4 mile north of the Cherry Hill Road overpass of the Capital Beltway (I-95/495). The LLRBS consists of two contiguous fields, each of which measures approximately 200 feet by 150 feet. Only the northernmost field was used to dispose of waste materials during the active life of the burial site. Additional details regarding environmental investigations and remediation activities conducted at LLRBS are presented below.

This burial site, which encompasses approximately 1.5 acres, was licensed by the Atomic Energy Commission and later by the Nuclear Regulatory Commission (NRC) (ENTECH, 1997d). Records indicate that the last liquid burial at this site was in September 1984. Since September 1985, all burials at this site were dry solids packed in 55-gallon drums. Radiological waste burial at the LLRBS ceased in 1987. ARS

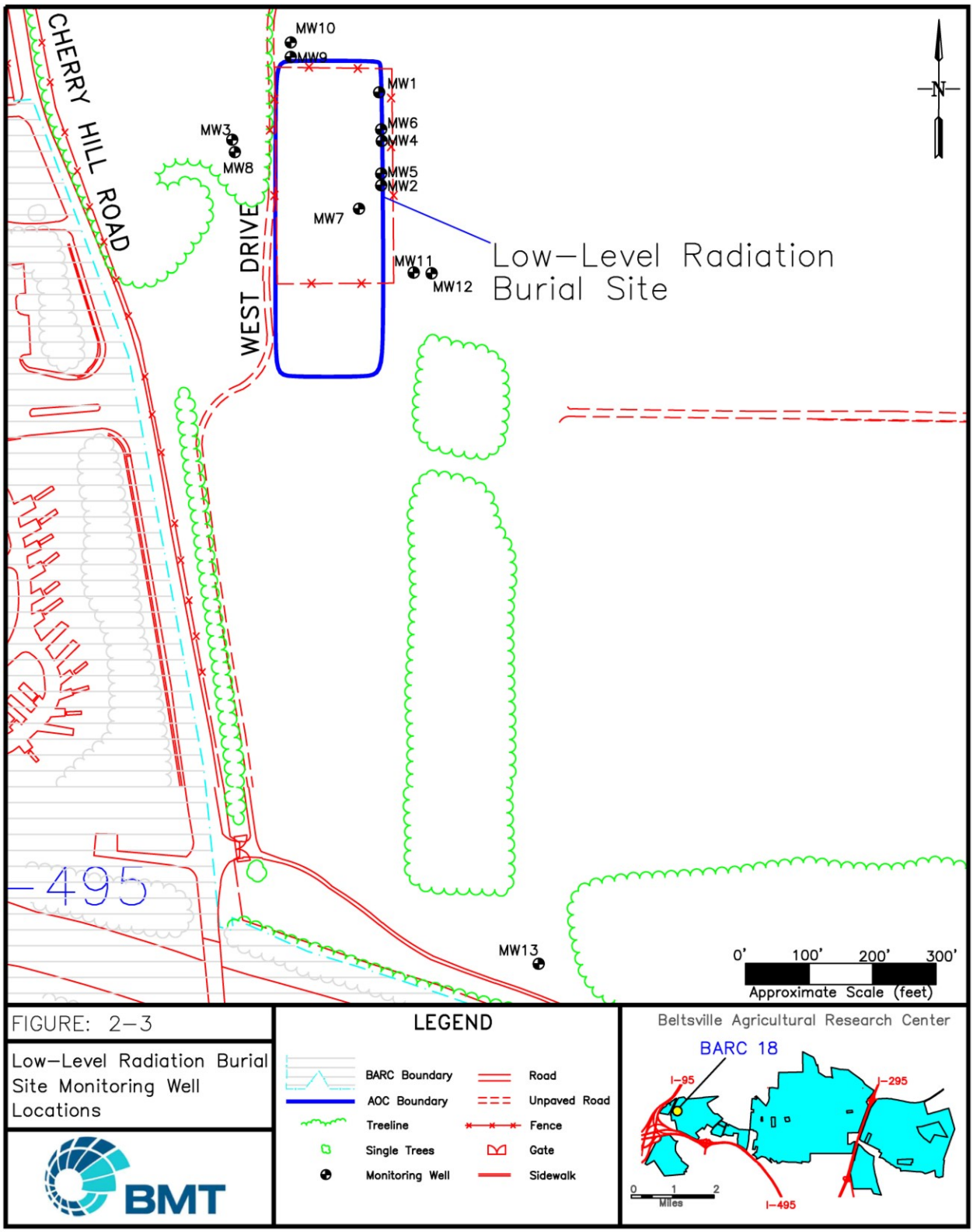

Figure 2-3. Low-Level Radiation Burial Site Monitoring Well Locations

documents indicate that a total of 50 disposal pits were excavated between 1951 and 1987. The approximate dimensions of the pits were 10 feet wide by 12 feet long by 10 feet deep, with six feet of separation between pits. The pits were covered with approximately five feet of clean backfill. Based on the dimensions and number of the pits, a rough calculation was made that estimated the site might contain a maximum of 33,000 cubic feet of waste (Apex, 1993).

Investigative activity in July 1997 at the LLRBS focused on determining the nature and extent of potential contamination in areas external to the fenced LLRBS. This activity primarily focused on potential groundwater and surface water/sediment contaminants, as well as characterizing general groundwater flow near the site. Groundwater downgradient of the site was screened to determine the general extent of contamination; additional downgradient and upgradient monitoring wells were installed; and groundwater and surface water/sediment samples were collected and analyzed (Figure 2-3). Groundwater contamination above drinking water standards was documented. Chloroform, $^{226/228}$Radium, tritium, and ^{14}C were detected downgradient of the site, and have continued to be identified through annual sampling of the existing monitoring well network.

The site was evaluated under NRC's LLRW decommissioning program, as well as EPA's CERCLA program. This dual regulatory authority influences the scope, complexity, and magnitude of ongoing site characterization and decommissioning activities and potential groundwater response action options. Internal discussions between NRC and EPA have established that NRC will maintain a lead role in completing the decommissioning of the LLRBS disposal pits, and that this aspect of the project will occur first. Upon approval of the decommissioning report, lead agency responsibility will be transferred to EPA Region III, who will retain responsibility through site closure under CERCLA.

A Characterization Survey Work Plan was prepared in 2004 along with supporting documents (e.g., Waste Management, Health and Safety, Field Logistics) to characterize the wastes within the LLRBS (Cabrera, 2004). Characterization efforts were initiated in the spring and summer of 2006 and consisted of the excavation and sampling of five of the approximately 50 disposal pits present at the site to develop a representative data set. A Characterization Survey Report was finalized in February 2009 (Cabrera, 2009). A decommissioning plan (DP) for the cleanup of the LLRBS was finalized in August 2009 (Cabrera, 2009a), and was reviewed and approved by NRC.

Site decommissioning activities were initiated during the spring and summer of 2013. Source removal and final site decommissioning activities were completed in 2015. A draft CERCLA closure report has been prepared that includes a round of both groundwater samples taking from existing wells and new temporary wells located within the excavation boundaries. The CERCLA post excavation investigation process will identify any environmental issues that might remain or require mitigation. Once closure is approved by EPA the site will be restored to its original contours and will be integrated into a wetland creation project to help support the Chesapeake Bay restoration efforts.

2.2.3. RI/FS at the College Park Landfill (BARC 22)

The College Park Landfill (CPLF) was an active landfill from approximately 1954 to 1978 and occupies roughly 30 acres. The landfill was operated by the City of College Park under a revocable permit issued by USDA in 1952. Per BARC records, in addition to the City of College Park, the landfill was used by the City of Greenbelt, Maryland, BARC, NASA's Goddard Space Flight Center, and the Consolidated Federal Law Enforcement Training Center. Based on available information, the landfill accepted predominantly residential refuse and construction debris, although other types of materials were probably placed in the landfill. Available information indicates that demolition and construction debris and soils comprised the landfill's final cover. Based on available data, it is believed that no engineered cap (e.g., clay) was constructed atop the landfill, and a groundwater monitoring program was not implemented after disposal activities ceased.

An SSP investigation was conducted at the landfill in 1997. Based on the analytical results of the SSP and the lack of an engineered cap and monitoring wells, additional investigation was considered necessary and the site was moved into the RI/FS program (Figure 2-4). The goal of the CPLF RI/FS was to build upon the data and information produced from the SSP investigation in order to make informed risk-based decisions for realistic site-specific remedial options.

The RI/FS Work Plan was approved by EPA Region III in September 1999 (ENTECH, 1999). The Work Plan called for conducting a wide range of investigations to characterize geologic and hydrogeologic conditions at the site, and to evaluate the nature and extent of contaminants that might represent risks to human health and the environment.

The initial RI fieldwork at the CPLF site was completed in early 2001. Technical Memoranda (TMs) were produced to describe several aspects of the RI, and included reports on the soil gas surveys, geologic and hydrogeologic investigations, a screening risk assessment, and wetlands delineations. The RI identified several VOCs, semi-volatile organic compounds (SVOCs), and metals in groundwater; however, only benzene was identified as exceeding Maximum Contaminant Level (MCL) criteria and these detections were only within the footprint of the landfill. Human and ecological risk assessments (ERA) completed for the CPLF identified unacceptable cancer risks for current exposure pathways. Potential erosion of the landfill slopes that are adjacent to the stream and wetlands is of major concern.

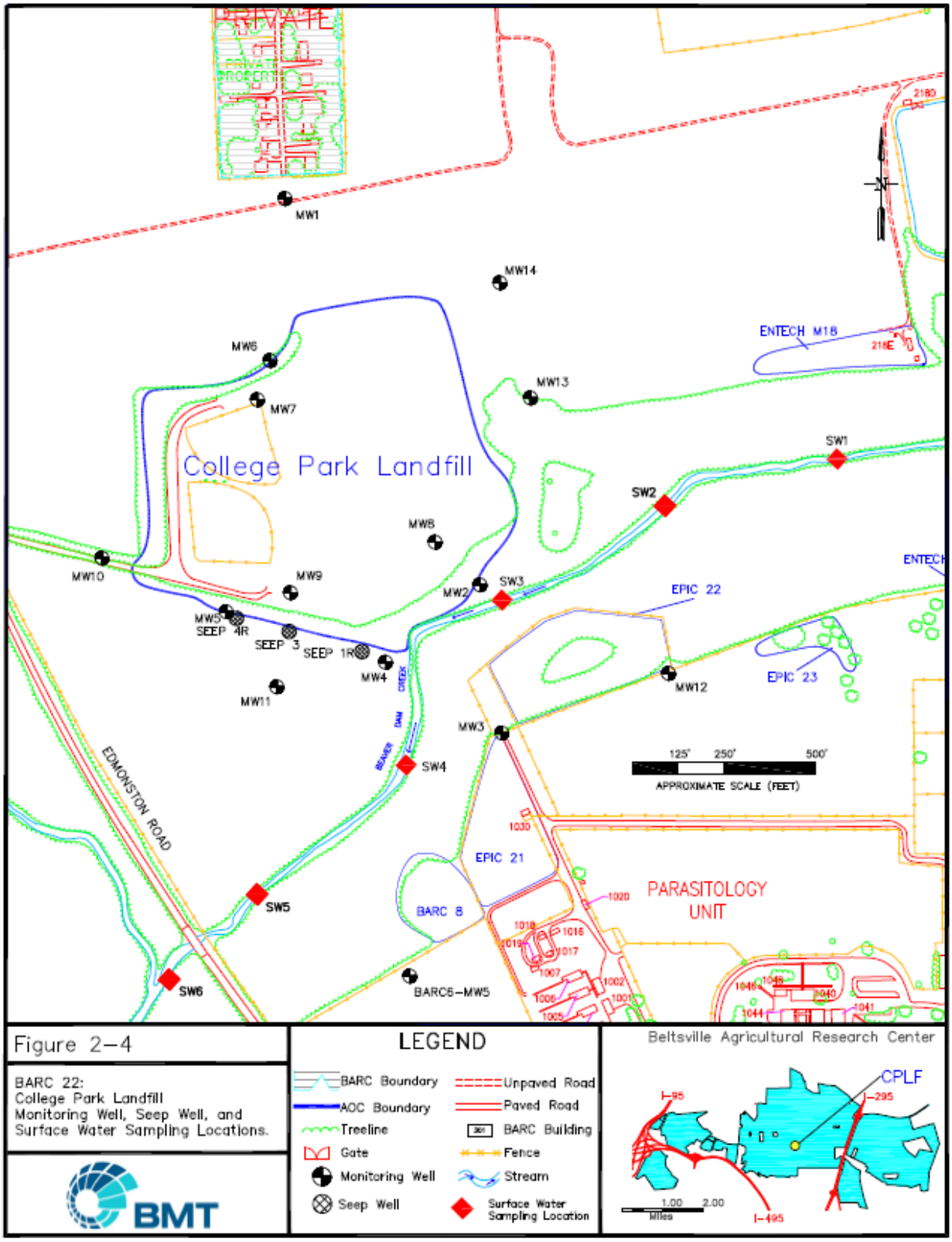

Figure 2-4. College Park Landfill Monitoring Well, Seep Well, and Surface Water Sampling Locations

Elements of a “presumptive remedy”, (EPA, 1993) for capping the landfill were initially included as aspects of the preferred RA. While some aspects of the presumptive remedy are likely to be implemented, further discussions with EPA Region III in early 2002 resulted in pursuing further evaluation of innovative alternatives for capping and closure of the landfill. These alternatives included a three-year pilot study program to evaluate the effectiveness of a vegetative bio-reactive landfill cover (VBLC) to retain water, sequester carbon, and minimize emissions of known greenhouse landfill gases. The pilot study effort was completed in the summer of 2008, and a final report was submitted in April 2009 (BMT ENTECH, 2009). The findings from the pilot study confirmed that a VBLC, applied as a cover at the CPLF, could serve as a cost-effective remedy that would also allow for continued use of the site for other purposes.

An FS detailing options for remediating the site (MWH, 2009) was finalized. Both EPA and ARS have indicated support for the implementation of a VBLC as the preferred remedy, and the VBLC concept has also received the support of MDE. A Proposed Plan (PP) is under development, detailing the implementation of a VBLC that will support a Record of Decision (ROD) selecting this remedy for the College Park Landfill.

Prior to issuing a ROD, ARS will evaluate the effect of leachate generated by the landfill on wetland ecology. These studies are expected to supplement RI findings in the development and design of the selected remedy. Additional efforts related to the identification of additional potentially responsible parties (PRPs) associated with the site may be undertaken.

2.2.4. RI/FS at the Chemical Disposal Pits (BARC 12)

The Chemical Disposal Pits (CDP) was initially identified during a PA/SI completed in 1991. Chemical disposal at the site reportedly began as early as 1965 and involved the placement and subsequent burial of spent chemicals in pits that measured approximately 10 feet long by 10 feet wide by 12 feet deep (Figure 2-5). Employees interviewed during the 1991 PA/SI stated that large quantities of chemicals were buried in these pits and that as many as 100 such pits were used during the 10 to 15 years this disposal site was active. In the late 1970s and early 1980s, the USDA, Maryland Environmental Service, EPA and the seven jurisdictions that sent waste to the District of Columbia Sanitary Commission’s Blue Plains Waste water treatment plant used the area for a groundbreaking pilot sludge composting research project. After sludge composting research was discontinued, BARC farm operations personnel used the site as an equipment and bulk materials collection yard; a use that continues to the present. As a result of this well documented research the sludge composting activities are held separate from the CDP assessment, and were fully evaluated as part of the CSWRP AOC SSP investigation.

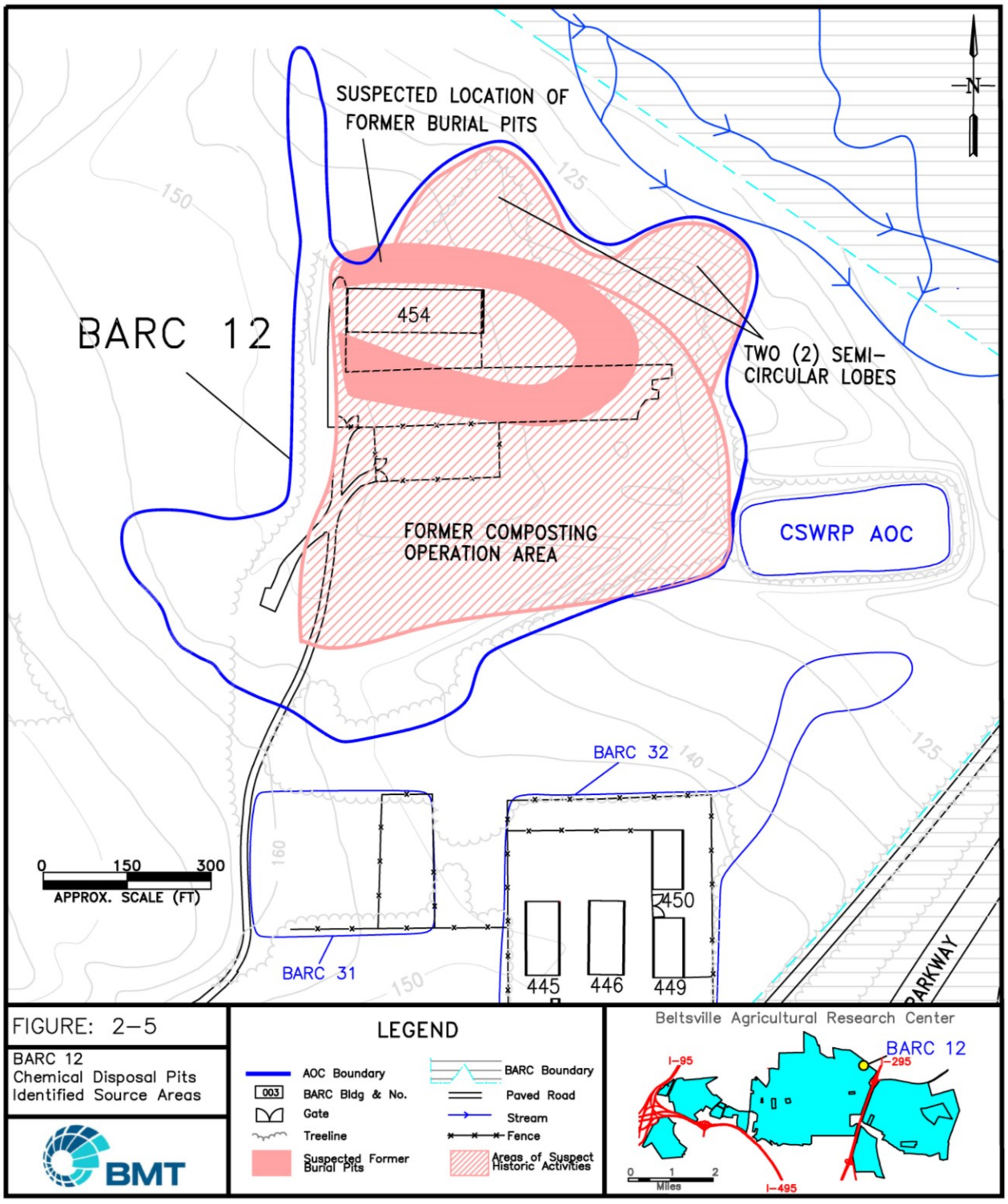

Figure 2-5. Chemical Disposal Pits Identified Source Areas

During a limited sampling program undertaken during the 1991 PA/SI, groundwater and soil media samples collected from the site revealed the presence of various chemicals at concentrations above EPA screening levels. Piezometers (ranging in depth from approximately 10 to 60 feet), that were previously installed in this area to monitor groundwater during the sludge project noted above, were utilized during

the SI for the collection of groundwater samples. The piezometers farthest east and southeast (downgradient) contained the highest concentrations of VOCs, pesticides and metals. In addition to the groundwater samples, five composite soil samples were collected from nine locations within this AOC (Apex, 1991). DDD, DDE, and DDT (DDx) pesticides and toluene were detected in several soil and groundwater samples.

In January 1998, a Desktop Data Collection Report was completed for BARC AOCs that identified this AOC for further evaluation (ENTECH, 1997c). The report summarized prior reports of investigations, the findings from aerial photographic analysis of this AOC, and findings observed from site reconnaissance activities at the site.

The Chemical Disposal Pits (CDP) was initially identified during a PA/SI completed in 1991. Chemical disposal at the site reportedly began as early as 1965 and involved the placement and subsequent burial of spent chemicals in pits that measured approximately 10 feet long by 10 feet wide by 12 feet deep. Employees interviewed during the 1991 PA/SI stated that large quantities of chemicals were buried in these pits and that as many as 100 such pits were used during the 10 to 15 years this disposal site was active. In the late 1970s and early 1980s, the USDA, Maryland Environmental Service, and the Washington Suburban Sanitary Commission (WSSC) used the area for a pilot sludge composting operation. After sludge composting was discontinued, BARC farm operations personnel used the site as an equipment and bulk materials collection yard; a use that continues to the present. Sludge compost activities are held separate from the CDP assessment, and are fully evaluated as part of the CSWRP AOC SSP investigation.

Since such disposal has the potential to contaminate environmental media, the report recommended site investigation activities to characterize groundwater, surface water, sediment, and soil, and further recommended the removal of surface debris, mostly burned and broken glass, that was identified during the PA/SI. This surface debris was removed in 1997 as part of a BARC-wide removal action (ENTECH, 1998b).

SSP field activities at this AOC were conducted in 1998 to address some of the recommendations contained in the Desktop Data Collection Report. SSP results showed the presence of VOCs, SVOCs, pesticides, and metals at elevated levels in surface soil, subsurface soil, sediment, and shallow groundwater. Contamination was found to be most concentrated in the northern portion of the AOC, where chemical disposal and burning is suspected to have taken place. Early sampling results suggested

soils and groundwater in the adjacent wooded areas and wetlands north and east of the AOC were not impacted by the site.

In late 1999, an RI work plan was submitted to, and reviewed by EPA Region III; following incorporation of their comments, the plan was finalized (ENTECH, 1999a) and the RI field program began in March 2000. Initial soil borings and test pits at the site identified a complex shallow subsurface composed of clay, sand, and gravel layers underlain by the Arundel clay formation. A soil gas survey, multi-media sampling, and a soil conductivity survey were used to develop appropriate locations and screening intervals for twelve monitoring wells that were installed in late 2000. Hydraulic (slug) testing of the wells was conducted, and the wells have been monitored annually since November 2000. Results of 21 rounds of groundwater sampling have documented the presence of a contaminant plume. The detected VOCs include halogenated aliphatic and aromatic compounds, fuel-related compounds, and ketones. SVOCs detected include chlorophenols, chlorinated aromatics, heavier fuel-related compounds, phthalate esters, and 1,4-dioxane. Twenty organochlorine (OC) pesticides have been detected in groundwater at the CDP since sampling began in 2000. Target Analyte List (TAL) metals detected above MCLs typically include arsenic, beryllium, chromium, and thallium in unfiltered groundwater, and beryllium and thallium in filtered groundwater. Lead has also been detected above the EPA Action Level in groundwater.

The primary risk drivers in groundwater are chlorinated and unchlorinated VOCs, with significant contributions to risk from metals and pesticides. Contaminant concentrations are highest in wells in closest proximity to areas where chemical dumping and burning was believed to have taken place. The groundwater plume is moving in a northeasterly direction in the unconfined aquifer, and based on current data, the area of the groundwater plume covers an area of approximately 13 acres.

To assess the off-site migration, the adjacent property owner was contacted, and arrangements made to allow ARS to conduct further investigation to the north and east. Initially, a semi-quantitative method known as Electrical Conductivity (EC)/Membrane Interface Probe (MIP) (EC/MIP) was used to characterize locations and depths of contaminants in the area. Using data from the EC/MIP survey, six new continuous multichannel tubing (CMT) wells were installed at depths up to 120 feet below ground surface. Data from the CMT wells have shown that site-related COCs at concentrations above MCLs are present north of the BARC property boundary. This provides evidence that COCs have migrated downgradient and offsite in an east-north easterly direction downgradient of the disposal area.

The completion of the CDP RI has required a substantial effort due to complex subsurface conditions, the extensive historic re-working of the site for various purposes, the need to conduct some of the investigation beyond the BARC property line, and the need to complete investigations incrementally. Factors that have resulted in delays include:

- Supplemental “source” investigations were continued to try and identify the location of the actual disposal pits through aerial photography reviews, geophysical surveys, soil borings and sampling. These efforts were unsuccessful in identifying disposal pit locations. Additional efforts to try to determine the precise location of the pits were considered beneficial and completed in 2012 using primarily geophysical and electrical conductivity methods and a report prepared (Tetra Tech, 2013). These investigations ultimately proved to be unsuccessful in locating the presence of any of the disposal pits.

- The historic footprint of the CDP (BARC 12) site was significantly reworked to create a new impermeable surface to conduct a large-scale composting research project that started in the 1970’s and continued till the early 1980’s. A large (~1 acre) stormwater retention pond was constructed to capture runoff from the operation. Based on a historical site review, it was determined that the composting activities were both historically and physically separated from historical disposal activities. In 2009, ARS and EPA determined that environmental issues related to the CSWRP were separate from those related to CDP site because the activities were not related to historical hazardous waste disposal. The CSWRP AOC was created by segregating the pond feature from the CDP AOC. The creation of the new AOC required the segregation of all the historical data collected and resulted in the need to complete a new ecological assessment of the CSWRP. Further, this data segregation activity also required re-analysis and re-presenting all the RI data (groundwater, stormwater, surface water, and sediment) of all relevant RI, human health risk assessment, figures, and text.

- Review of the initial RI data identified data gaps north of the site; thus, four additional monitoring wells were installed in the spring of 2014 to further delineate the groundwater contaminant plumes to the north and west of the BARC 12 AOC and to provide additional data on subsurface lithology (BMT D&P, 2014b).

An updated draft RI report that incorporated the additional groundwater data collected from the four additional monitoring wells was finalized in May 2017. The draft FS for the site was completed in early 2019 and is under review by ARS and EPA. Remedy selection and subsequent decision documents (i.e., PRAP and ROD), and public meetings will follow.

2.2.5. RI/FS at the Beaver Dam Road Landfill (BARC 27)

The Beaverdam Road Landfill (BDRLF) was identified in the 1991 Apex PA/SI as a large, dome-shaped landfill reportedly used to dispose of nonhazardous substances such as construction rubble, furniture, and other debris generated by BARC operational activities (Apex, 1991). Historical aerial photographic coverage of this AOC (also known as “BARC 27”) revealed that the site may have been used as a disposal site as early as 1943; subsequent aerial coverage visually documented the continued growth of the landfill over the course of several decades. Disposal activities continued at BARC 27 through the

1980s, after which time the landfill was closed and capped with a geomembrane, clay soil, and concrete rubble.

BARC received an Industrial Waste Management Permit from Maryland to operate the facility in 1985. That permit, which expired in 1990, outlined various monitoring, reporting, and general operating requirements needed in order to continue receiving construction debris and vegetative waste streams. A key monitoring aspect of the permit was the requirement to install and develop a series of monitoring wells to assess potential impacts to groundwater resources in the immediate vicinity of BDRLF. A set of four monitoring wells (one upgradient and three downgradient) were established around the perimeter of the BDRLF. The permit called for monitoring the wells for the following parameters: pH, SpC, hardness, chloride, total dissolved solids, chemical oxygen demand, and total dissolved organic carbon (MDE, 1985).

During an initial CERCLA investigation in 1996, a site reconnaissance visit of the landfill was conducted to assess its physical condition. The walkover of the fill area did not reveal any evidence of debris lying on or protruding from the landfill; however, an area of surface debris was detected on the eastern side of the AOC. The materials observed were composed primarily of construction and household wastes and included an empty 55-gallon drum and a large compressed gas cylinder. The location and presence of these items suggested that limited open dumping probably occurred at this AOC after it was closed and capped in the early 1990s.

Two rounds of groundwater sampling were completed at the BDRLF in 1997 and 1999, respectively. The 1997 sampling round was conducted as part of a BARC-wide baseline groundwater sampling program of existing BARC wells. TCE and cis-1,2-dichloroethene (DCE) were detected above the Risk Based Concentrations (RBCs) within wells that were located downgradient of the old landfill. Based on the high concentrations of chlorinated organic compounds detected in groundwater, ARS and EPA agreed that an RI/FS should be completed for this site.

The RI soil gas sampling and conductivity probing was completed in November 2002. The remaining RI activities including surface soil, subsurface soil, surface water, and sediment sampling; along with monitoring well installation and sampling were completed in May 2003. The results of the RI found that the primary Contaminants of Concern (COCs) at BDRLF are TCE and its breakdown products (1,1-DCE, trans-1,2-DCE, and cis-1,2-DCE) in shallow groundwater.

The data from both Geoprobe® groundwater sampling and monitoring well sampling have shown that chlorinated organics in groundwater have migrated downgradient (south) from BARC 27. The Beaver Dam Creek tributary that flows south to Beaver Dam Creek is not fully preventing this migration; however, as of 2018, monitoring events have not detected impacts to the creek. Additionally, the extent of

groundwater contamination had not been fully delineated south and east of the landfill. The RI report was finalized in March 2008 (BMT ENTECH, 2008a).

Following EPA acceptance of the RI report, an FS report was prepared and finalized in July 2008 (BMT ENTECH, 2008b). The FS examined various remedial alternatives to address the contaminated groundwater. These included: land use controls and groundwater monitoring; extraction, on-site treatment, and recharge; and groundwater treatment using a permeable reactive barrier (PRB) compost/mulch biowall (referred to here after as a 'biowall'). Biowalls are permeable trenches filled with biologically active materials, such as mulch, compost, and/or vegetable oil, and used to capture and remediate chlorinated VOCs in groundwater by a process of natural reduction. A mulch biowall was selected by ARS and EPA as the remedy to treat contaminated groundwater due to its relatively low cost, ease of implementation, and effectiveness. A public meeting discussion of this RA was held in July 2009, and a ROD was finalized in September 2011.

A Remedial Design and Remedial Action (RD/RA) Work Plan was prepared that detailed the design drawings, site preparation and biowall installation activities to fully implement the presumptive remedy described in the ROD (BMT D&P, 2013). Site preparation activities were carried out during the spring and early summer of 2013 and the biowall was installed at the BDRLF in July.

A Performance Monitoring Plan (PMP) was developed in conjunction with ARS researchers that details the data collection activities and analysis that will be used to assess the performance of the biowall for the CERCLA 5-year review (BMT D&P, 2013a). The PMP is a living document that is updated as data collection procedures are refined, or as new analytical requirements are added. Immediately adjacent to the biowall are 18 monitoring wells installed to allow for the collection and monitoring of groundwater quality data from within the biowall (Figure 2-6). Activities associated with PMP requirements are ongoing. Remedy performance is monitored on a bi-weekly and quarterly basis, and quarterly reports are issued to ARS and EPA to track progress toward remediation goals. The third annual review of the Biowall performance was submitted to EPA for review in January 2016.

The initial EPA-Five Year Review was completed in July 2018. The conclusion of this CERCLA review process found that although the Biowall is functioning as intended, complete degradation of TCE is not occurring. Plans to investigate the incomplete dichlorination process and efforts to enhance the process through the addition of possible amendments to improve performance have been proposed to the EPA. Depending on funding, the implementation of amendment(s) will occur in FY2019.

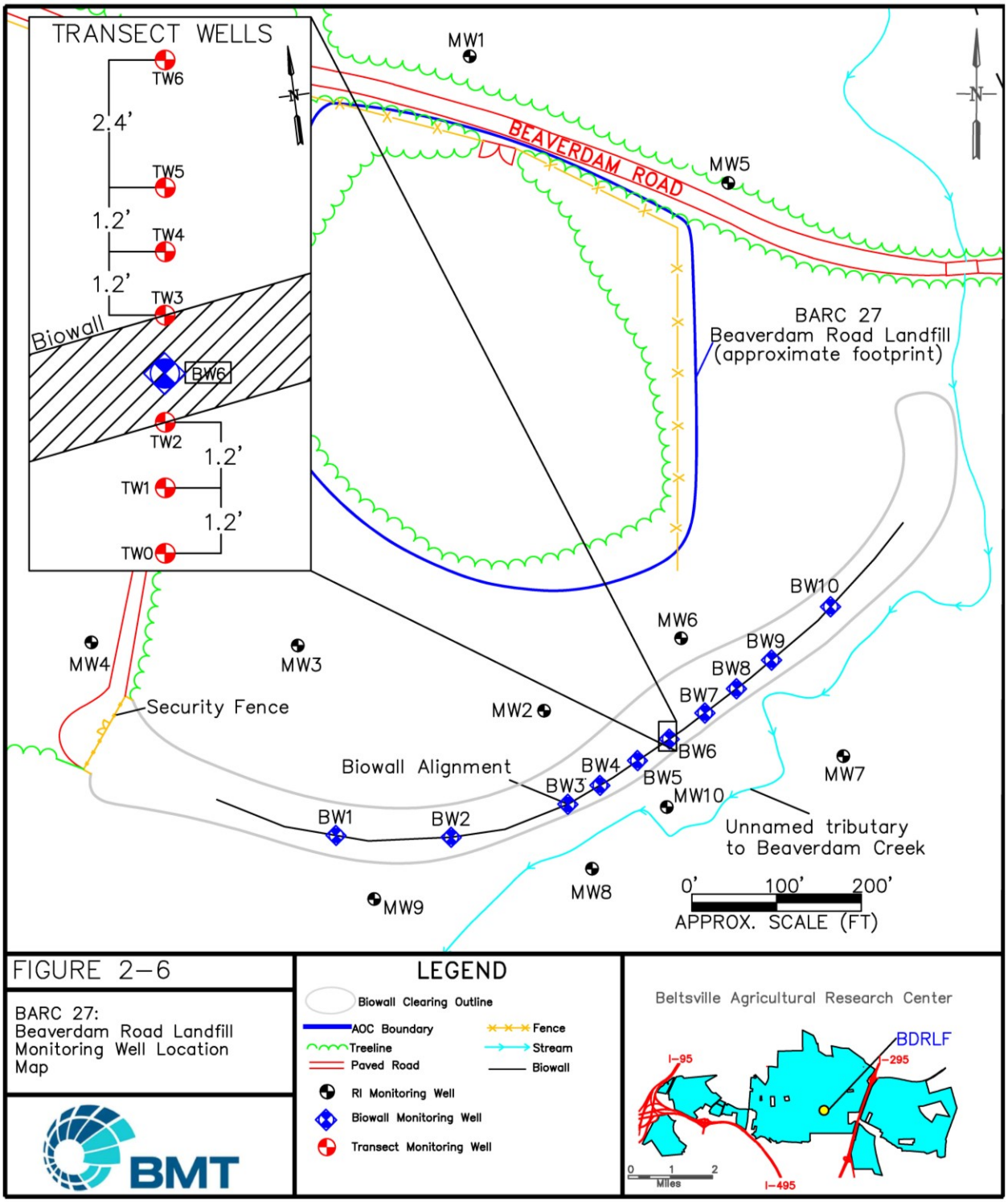

Figure 2-6. Beaverdam Road Landfill Monitoring Well Location Map

2.2.6. RI/FS at EPIC 7 & 8 – Open Storage Area

These AOCs are collocated within North Farm adjacent to where a historical on-ground coal storage area was located. This “pad” was later removed and replaced by above ground heating fuel oil tanks used to service the nearby BARC Heating Plant facility (Building 14). Although they are separate AOCs, EPIC 7 and 8 are being addressed together due to their common history of association with the Heating Plant, and general equipment and materials storage. The AOCs share common western and central boundaries, and combined cover an area of less than 1 acre (approximately 38,250 sq. ft.). They are currently open areas but are still used for material and equipment storage.

Little Paint Branch, located approximately 70 feet to the west, flows in a southerly direction past EPIC 7 and 8. It is physically separated from the sites by an earthen berm installed to minimize runoff from low-lying areas at the Site from entering the Little Paint Branch.

Coal storage activities occurred at EPIC 8 until sometime between 1957 and 1963 when two 75,000-gallon above ground storage tanks (ASTs) were installed adjacent to EPIC 8 when the Heating Plant converted from coal to fuel oil. Ground scarring as a result of coal storage activities on EPIC 8 was evident through the 1968 aerial coverage. SSP investigations observed coal in surface and subsurface soil in soil borings in 2011.

Several SSP investigations have been completed at these AOCs. A high concentration of lead (10,000 mg/kg) in soils was identified and subsequently confirmed at EPIC 7. At EPIC 8, several SVOCs were identified in soil that exceeded risk screening levels. This finding led to a more comprehensive soil investigation, and the installation of a monitoring well to evaluate groundwater quality.

In 2017, ARS and the EPA Region III agreed to complete a full RI/FS of these AOCs in accordance with CERCLA requirements. Current plans for the RI include completing a conceptual site model (CSM), the installation and sampling of additional monitoring wells, and completing human and ecological risk assessments (Figure 2-7). RI field investigation activities were completed 2018, and the RI report is being prepared for completion in FY2019. The development of an FS to evaluate remedial options will follow.

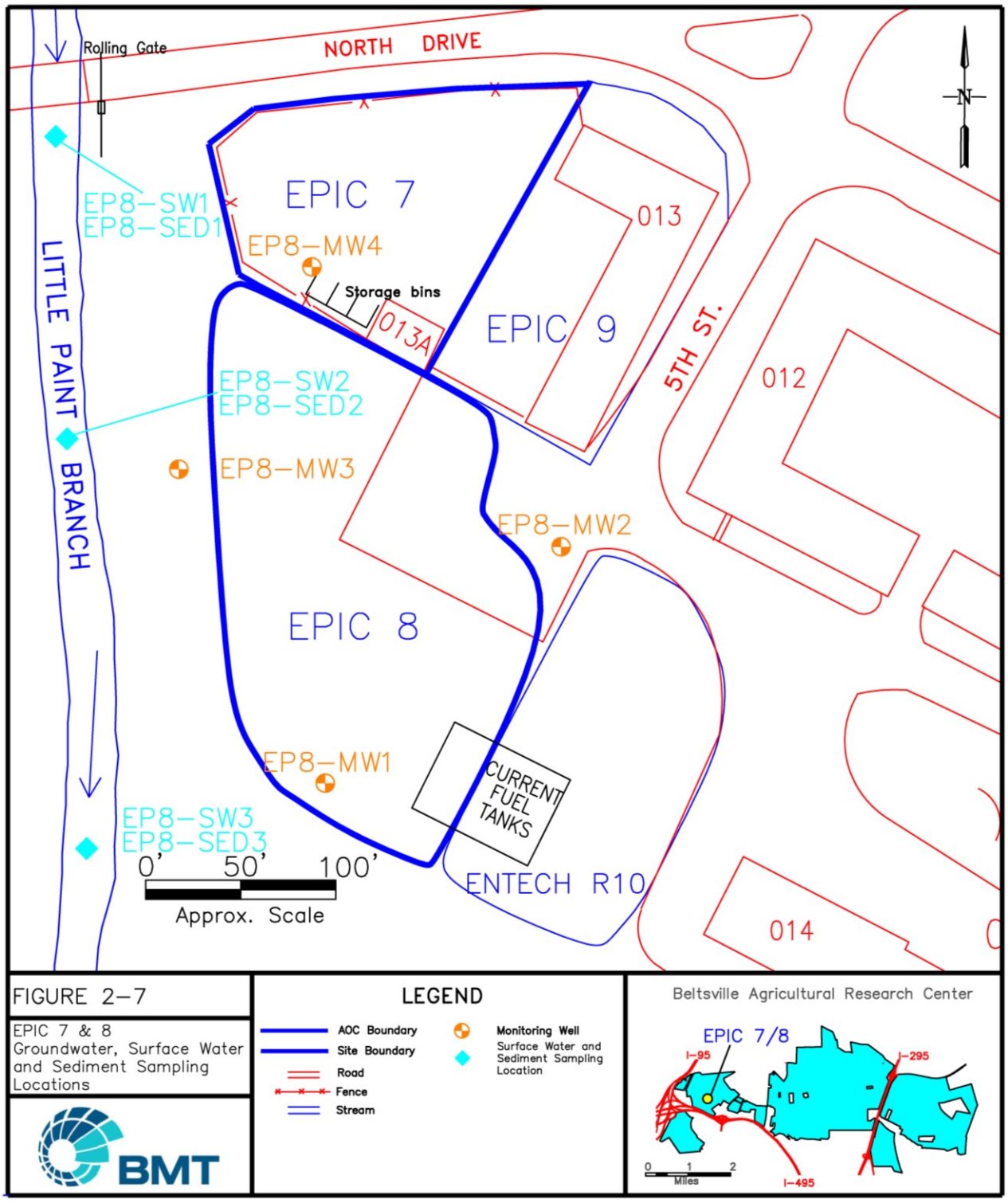

Figure 2-7. EPIC 7 & 8 Groundwater, Surface Water, and Sediment Sampling Locations

2.2.7. RI/FS at BARC 32 – Former PCB Storage Area

The BARC 32 AOC, known as the Former PCB Storage Area, is located in the northeast portion of Central Farm. The BARC 32 AOC measures approximately 400 feet by 450 feet (4.1 acres) and was identified as a maintenance/service yard containing several buildings (B-445 through B-450) constructed and operational sometime between 1939 and 1943. An unrelated portion of this site had historical releases from underground tanks, which is being managed in conjunction with MDE.

The SSP investigation determined that the storage of pole mounted transformers and focused on the potential presence of polychlorinated biphenyls (PCBs) in soil. Findings from the SSP investigation identified high concentrations of PCBs in soil, and a Time Critical Removal Action (TCRA) was planned and completed in 2003-2004. Over 9,000 tons of contaminated soil was excavated for proper offsite disposal. Soil remediation did not address groundwater contamination identified in the SSP, and a supplemental investigation was planned to identify the extent of contamination in the surficial aquifer.

A follow-on investigation was conducted in 2008 to characterize and delineate the TCE groundwater contamination. Based on the soil borings and groundwater sampling analytical results, four (4) permanent groundwater monitoring wells were installed and sampled. The follow-on sampling determined that a TCE groundwater plume was present on the site and was moving in a southeasterly direction. Some breakdown products were also detected, and TCE contamination was detected at concentrations exceeding 300 µg/L, significantly above its MCL of 5 µg/L.

A Supplemental Site Characterization program was conducted to further delineate the extent of groundwater contamination and to confirm subsurface lithology in 2015). As part of the Supplemental Site Characterization program, four (4) additional groundwater monitoring wells were installed to provide additional sampling points for contaminant detection, groundwater elevation measurements, and long-term groundwater quality monitoring. The findings partially delineated the extent of VOCs in groundwater; however, the extent of contamination to south and southeast could not be determined. The investigation determined that additional groundwater quality data was needed from the area south and southeast of the BARC 32 AOC to fully delineate the extent of VOCs in groundwater. Based on the results of the supplemental site characterization, BARC decided to perform a treatability study as a proactive measure to address higher concentrations of VOCs at the on-site source, and to determine if a proprietary remedy could be employed to remediate the full extent of the contaminant plume.

In 2014, a supplemental site characterization at the BARC 32 AOC was carried out to further delineate the extent of chlorinated ethene contamination identified in groundwater and to verify the subsurface lithology. A Treatability Study using a proprietary product called “Osorb®”, was designed and implemented; however, the study was considered marginally effective in reducing the concentration of PCE in groundwater at the site and further evaluations of this technology were not conducted.

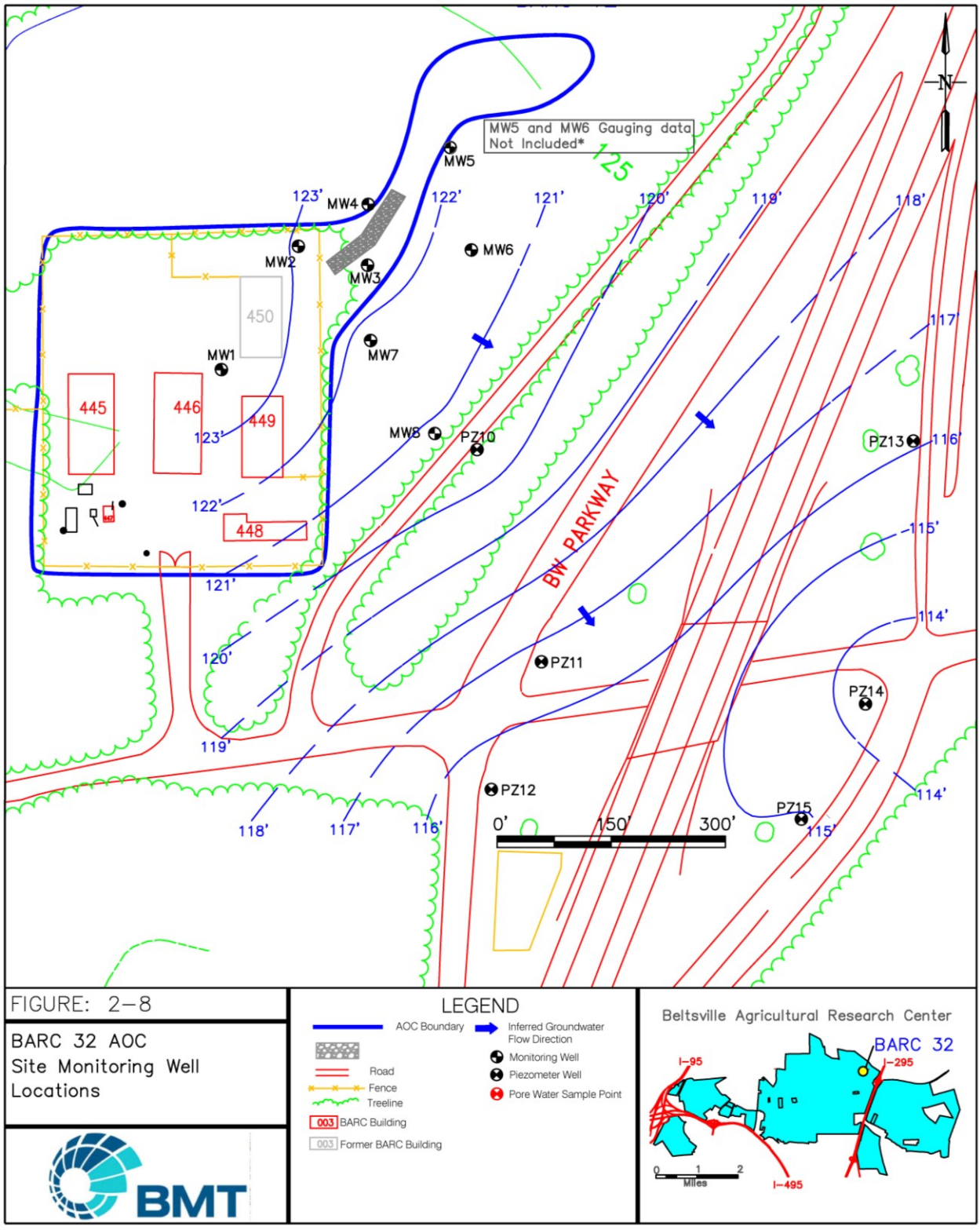

Figure 2-8. BARC 32 AOC Site Monitoring Well Locations

In 2017, ARS and the EPA Region III agreed to complete a full RI/FS of the BARC 32 AOC in accordance with CERCLA requirements to pursue resolution of groundwater contamination. The plume has been determined to extend beyond the BARC property line and moving toward a stream (Figure 2-8). These findings have added complexity that required further investigation to identify the full nature and extent of the contamination, and appropriate remedies to address the contamination. The draft RI was completed and submitted to ARS and EPA for further review in 2019. The RI includes a conceptual site model (CSM), additional data from the installation and sampling of additional monitoring wells, and human and ecological risk assessments. Following the completion and acceptance of the RI by EPA, an FS will be developed to evaluate options for remedial action.

2.2.8. RI/FS at BARC 4 & 19 – Pesticide Washdown Area

Pesticide contamination from historically acceptable operational practices was identified in soil over a large area of these two (also adjacent) AOCs. ARS and the University of Maryland are collaborating on a research treatability study to evaluate amendments to sequester contaminants that would significantly reduce bioavailability and ecological exposures up the food chain. To date, these studies are ongoing, and the appropriate soil amendment mechanism to address long term sequestration concerns beyond the large-scale pilot study phase has not been finalized to allow the streamlined FS to be started.

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3. SITE MANAGEMENT PLANNING AND SCHEDULING

This section outlines the assumptions used to establish the schedules contained in this SMP as part of the FFA. “Primary” and “secondary” documents are also defined and discussed, as well as document review processes.

3.1. Scheduling Assumptions

The subsections that follow describe the assumptions that drive the schedules specified in the FFA for document generation, document review, and field activities. While a dispute resolution process has been established and is detailed in the FFA; EPA and ARS have worked together to resolve differences.

3.2. Primary and Secondary Documents

Documents are categorized in the FFA as either primary or secondary. Primary documents include those documents that are major elements of SSP, RI/FS, or RD/RA activities. USDA-ARS must submit these documents to EPA for review and comment in draft and draft-final versions. At each stage in the primary document reporting process, comments are addressed as appropriate and all disputes are resolved in accordance with the FFA. Final primary documents are also submitted to EPA. Primary documents include:

- SSP Work Plans
- SSP Reports (including AOC Closeout Reports)
- RI/FS and Focused FS Work Plans
    - RI/FS Reports
    - RD/RA Work Plans
    - RA Sampling Plans
- RA Construction Quality Assurance Plan
- RA Environmental Monitoring Plan
- Final Remedial Designs
- Community Relations Plans
- Supplemental Work Plans
- Operational Work Plans
- RA Reports
- Removal Action Memoranda
- Engineering Evaluation/Cost Analysis Reports
- Time-Critical and Non-Time Critical Removal Action Plans
- Site Management Plan
- Master Quality Assurance Project Plan
- Master Risk Assessment Plan

Secondary documents are discrete portions of primary documents and are typically considered input or "feeder" documents. Secondary documents are typically issued to EPA by USDA-ARS in draft format but may become part of a primary document. Secondary documents are subject to comment and review as specified in the FFA. The following are considered secondary documents:

- Sampling and Data Results
- Conceptual Design Documents
- 30/60/90 Percent Design Documents
- Periodic Review Assessment Reports
- Site-Specific Health and Safety Plans
- Pilot/Treatability Study Work Plans
- Pilot/Treatability Study Reports
- Any other document, as agreed upon by the Parties to the FFA

3.3. Document Review Process

The schedules for primary and secondary document review, submission, and comment/comment response are based on the time periods specified in the FFA. EPA Region III technical staff operate in a team approach that includes a Remedial Project Manager (RPM), Human Health Risk Assessor, Ecological Risk Assessor from the Biological Technical Assistance Group (BTAG), and a hydrogeologist. ARS is similarly composed of an RPM and supporting contract technical staff. An overview of the document review/revision process is presented in Table 3.1.

Table 3-1. Document Review Process

Primary Document	Calendar Days	Secondary Document	Calendar Days
EPA Draft Document Review	60	EPA Draft Document Review	60
USDA-ARS Incorporation of Comments	30	USDA-ARS Incorporation of Comments	30
EPA Draft-Final Document Review/Final Document Submission	60/30*	Final Document Submission	30*

* The draft final document shall serve as the final document after review and comment if no party invokes dispute resolution; however, EPA's written approval of the final report must be obtained before the document can be considered final. If dispute resolution is invoked, the schedule will comply with FFA guidelines.

3.4. Ongoing SMP Project Schedules

This section presents ongoing projects for AOCs or groups of AOCs identified in this SMP. Table 3-2 provides a summary of primary documents and delivery schedule milestones for all ongoing SMP projects, and additional details and completed projects are summarized in Appendix A. Progress on those tasks marked "to be determined" (TBD) are insufficiently defined to allow an accurate assessment of downstream schedules, and an accurate schedule cannot therefore be confidently put forward. These tasks require significant inputs and feedback from both parties and will be updated in forthcoming versions of the SMP. The SMP will include these updates.

Table 3.2. Summary of Ongoing/Scheduled Investigations

(Note: Milestones estimated at time of document preparation.)

Project Name	Primary Final Document(s) & Major Milestones	Estimated (E) Milestone Date
RI/FS at the Biodegradable Site (BARC 6)	RI Report	July 2004
	FS Report	May 2006[1]
	Monitoring Well and Stream Sampling Report (2014)	September 2014
	Fate & Transport Evaluation Report (Modelling)	June 2016
	Updated Final RI and Focused Feasibility Study[2]	December 2019 (E)
	Proposed Plan (No Further Action anticipated)	August 2020 (E)
	ROD (No Further Action anticipated)	August 2021 (E)
Site Investigation at the Low-Level Radiation Burial Site (BARC 18)	Characterization Survey Work Plan	November 2004
	Characterization Survey Report	February 2009
	Decommissioning Plan	August 2009
	Completion of Source Removal and disposal radiological waste (17,371 cubic yards)	April 2015
	Final disposal of all mixed waste drums (6)	April 2015
	Final Status Surveys, NRC Required Sampling	August 2017
	No Additional Consultation Letter from NRC to EPA	October 2017
	NRC FSS Approval and Removal from USDA License	November 2017
	Transfer site to EPA to address CERCLA Process	July 2019
	CERCLA Data Report	January 2020
	Decision Document	TBD
	Site Backfilling and Restoration Work Plans	TBD
RI/FS at the College Park Landfill (BARC 22)	RI Report	February 2008
	FS Report	December 2009
	Pilot Study Report	June 2010
	Proposed Plan	June 2020 (E)
	ROD	June 2021 (E)
	RD/RA	TBD
RI/FS at the Chemical Disposal Pits (BARC 12)	Supplemental Groundwater Investigation.	June 2007
	Supplemental Source Investigation Report	May 2012
	Supplemental Groundwater Well Installation & Sampling	June 2014
	Supplemental Groundwater Study Report	October 2014
	RI Report Update	May 2017
	FS Report	January 2020 (E)
	Proposed Plan	October 2020 (E)
	ROD	October 2021 (E)
	RD/RA	TBD

Table 3.2. Summary of Ongoing/Scheduled Investigations
(Note: Milestones estimated at time of document preparation.)

Project Name	Primary Final Document(s) & Major Milestones	Estimated (E) Milestone Date
RI/FS at the Beaver Dam Road Landfill (BARC 27)	Final RI Report	March 2008
	Final FS Report	July 2008
	Proposed Plan	August 2009
	ROD	September 2011
	RD	February 2013
	RA	July 2013
	RACR (Final)	June 2016
	Post-Implementation Monitoring (5 years)	September 2018
	Initial 5-Year Review	November 2018
	PMP Reporting and Recommendations	February 2019
	Biowall Performance Enhancements	February 2020 (E)
	Interim Performance Monitoring and Reporting	Quarterly and Annually
	Second 5-Year Review	July 2023 (E)
BARC 32	Treatability Study Initiation	June 2018
	Treatability Study Completion	September 2018
	Work Plan	October 2018
	RI Report	December 2019
	FS Report	November 2020 (E)
	Proposed Plan	August 2021 (E)
	ROD	TBD
	RD/RA	TBD
EPIC 7&8	Supplemental Investigations	October 2017
	RI Work Plan	December 2017
	RI Report	June 2020 (E)
	FS Report	December 2020 (E)
	Proposed Plan	August 2021 (E)
	ROD	TBD
	RD/RA	TBD
BARC 4&19	Treatability Study Initiation	September 2012
	Treatability Study Completion	September 2017
	RI Work Plan	December 2019 (E)
	RI Report	June 2020 (E)
	FS Report	December 2020 (E)
	Proposed Plan	September 2021 (E)
	ROD	TBD
	RD/RA	TBD
Ecological Risk Assessment (ERA) - Tiered Approach	Baseline ERA (BERA)	February 2006 (A)
	Ecological Technical Memoranda	February 2009 (A)
	Site Specific Ecological Assessments	As required
SSP Screening Human Health Risk Assessment (HHRA) and Follow-on Program - AOC-by-AOC Basis	Supplemental SSP Screening Work Plans	September 2002 (A)
	Supplemental SSP Screening HHRA Reports (Begin)	September 2002 (A)
	Supplemental SSP Screening HHRA Reports (End)	July 2019 (E)
	Follow-on SSP Reports (Begin)	October 2002 (A)
	Follow-on SSP Reports (End)	November 2020 (E)

Table 3.2. Summary of Ongoing/Scheduled Investigations

(Note: Milestones estimated at time of document preparation.)

Project Name	**Primary Final Document(s) & Major Milestones**	**Estimated (E) Milestone Date**
AOCs moving to RI/FS or remedial activities.	Beltsville Bog Decision Document Beltsville Bog Remedial BARC 15 & EPIC 47 (Airport AOCs)	TBD
AOCs Proposed for Closure (Decision Document) in FY20 (7)[3]	1. EPIC 16 – CSX Rail and Sunnyside Ave 2. Entech R23 – Rose Garden 3. Entech R2 – NASA Antenna Site 4. Entech M26 – Shooting Range 5. FDA 2 – Wooded Area 6. Building 421 – Former Transformer Storage Pad 7. Composting Stormwater Retention Pond (CSWRP)	September 2019 (E)
	Planned Future Closures/Decision Documents Beltsville Bog Entech 7 – Open Storage Area BARC 15 – Airport Test Droplet Area EPIC 47 – Airport Former Research Area	TBD

1. Draft FS Report was completed; however, further groundwater modelling has demonstrated responsibility by an upgradient source site. See section 2.2.1 for further discussion.
2. No Action Remedial Investigation (updated) anticipated.
3. See Appendix A for descriptions and status

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APPENDIX A

Current AOC Status Summary

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Appendix A Current AOC Status Summary – April 2019				
AOC ID	**AOC Name**	**Investigation, Cleanup, and Reporting Status[1]**	**Further Action**	**Decision Document Issued?**
BARC 1	Experimental Wood Treatment Area	SSP sampling and human health risk screen completed.[2] Debris removal and additional follow-on sampling completed to bound arsenic contamination detected in surface soil. Agreement between ARS and EPA[3] to conduct site cleanup (12/02[4]). Cleanup goals were developed, and an EE/CA completed to evaluate remedial options to complete the cleanup as a non-time critical removal action (NTCRA) (11/05). Removal Action Plan, Removal Action Memo, and Soil Erosion and Sediment Control Plan were completed. The NTCRA was completed in 2006, and an After-Action Report was finalized in 2009. A Decision Document has been prepared and accepted (08/10), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
BARC 2	South Farm Dump	SSP sampling and human health risk screen completed. Debris removal completed. NFA[5] for human health (01/01). Ecological risks were evaluated in a Technical Memorandum (TM) following EPA guidance (03/09). No further action was required to address potential ecological receptors. A Decision Document has been prepared and accepted (08/09), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
BARC 3	North Farm Dump	SSP sampling and human health risk screen completed. NFA for human health (3/01). Ecological risks were evaluated in a Technical Memorandum (TM) following EPA guidance (03/09). No further action was required to address potential ecological receptors. A Decision Document has been prepared and accepted (08/09), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
BARC 4	B-033 Washdown Area	SSP sampling and human health risk screen completed. Associated with the BARC 19 AOC, multi-media sampling required for human health, primarily to delineate pesticide and lead contamination (3/01). Follow-on work plan and sampling completed, and a follow-on report prepared and submitted to EPA (11/12/02). Further delineation activity has been completed (11/05), as well as supplemental sampling (09/06), and a small mammal bioavailability study (10/08). A removal action was completed to address higher concentrations of soil contamination at this site in 2011. Field studies are ongoing to evaluate options to address ecological risks and remediate residual pesticide contamination in soil. A Pilot Study was started in 2012, is being completed in several phases, and will be ongoing through 2019. Due to the ongoing and complex nature of the investigations at this site, EPA and ARS have agreed to move this site (including the associated BARC 19 AOC) into a full CERCLA RI/FS. The RI will incorporate all previous remedial and investigation data and findings for the site and evaluate remedies to address remaining human and ecological risks. See Section 2.2.8 for further discussion.	Further Action for Human Health and Ecological Risk	N
BARC 5	Herbicide Washdown Area	SSP sampling and human health risk screen completed. NFA for human health (06/01). NFA for ecological risks per a TM prepared for the site (3/09). A Decision Document has been prepared and accepted (08/09), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y

Appendix A Current AOC Status Summary – April 2019				
AOC ID	**AOC Name**	**Investigation, Cleanup, and Reporting Status[1]**	**Further Action**	**Decision Document Issued?**
BARC 6	Biodegradable Site	Not investigated under the SSP program. CERCLA Remedial Investigation and Feasibility Study completed in draft. RI was completed (6/04). Draft FS was developed (01/06) and reviewed by EPA but has not been finalized. Completion of FS has been delayed due to the need to evaluate another potentially responsible party (PRP). Additional monitoring wells installed in 2010 and joint groundwater studies conducted in conjunction with PRP. A groundwater flow model was developed for the site. In addition to model results, additional sampling results from a groundwater sampling event completed in 2014, and data from the original 1993 landfill removal were assembled into a single report that was finalized in May 2016. The RI report was updated in 2018 to incorporate findings from groundwater investigations and the groundwater modeling project supporting the finding that groundwater impacts are from an upgradient source. Upon the approval of the updated RI Report, a 'No-Action' ROD will be produced recommending no further action on the part of BARC. See Section 2.2.1 for further discussion.	RI/FS Process ongoing	N
BARC 8	APU Waste Dump	SSP sampling and human health risk screen completed. Additional sampling required for human health to confirm and delineate elevated SVOCs and metals in groundwater (11/01). Draft follow-on work plan approved by EPA Region III with modification (06/02); field work completed, and a final report submitted (01/06). Elevated levels of manganese were also detected in groundwater, and a study was completed and accepted by EPA that determined that the presence of manganese was naturally occurring (10/06). NFA for human health (03/06). NFA for ecological risks per a TM prepared for the site (3/09). A Decision Document has been prepared and accepted (08/09), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
BARC 9	Dump off Odell Road	SSP sampling and human health risk screen completed. Debris Removal Action completed as a TCRA (07/97). Visual inspection of surface soil for evidence of oil or ash required for human health based on elevated PAH detections (06/01). Additional visual inspections conducted in 2002. No soil staining was observed; however, widely scattered debris was observed. NFA for human health approved by EPA Region III (09/03). Ecological risks were evaluated per a TM prepared for the site (3/09). A Decision Document has been prepared and accepted (08/10), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
BARC 10	B-301 Washdown Area	SSP sampling and human health risk screen completed in conjunction with ENTECH M23. NFA for human health (01/01). NFA for ecological risks per a TM prepared for the site (3/09). A Decision Document has been prepared and accepted (08/09), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
BARC 11	Dump East of B-409	SSP sampling and human health risk screen completed. Debris removal completed. NFA for human health (01/01). NFA for ecological risks per a TM prepared for the site (3/09). A Decision Document has been prepared and accepted (08/09), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y

Appendix A Current AOC Status Summary – April 2019				
AOC ID	**AOC Name**	**Investigation, Cleanup, and Reporting Status[1]**	**Further Action**	**Decision Document Issued?**
BARC 12	Chemical Disposal Pits	Debris removal completed. CERCLA Remedial Investigation was delayed for additional investigations to try to identify contaminant source areas. Ecological risks have been evaluated per a TM prepared for the site (03/09). Investigations have included membrane interface probing (MIP) to identify subsurface VOC zones, and extensive efforts to physically locate sources, including test pits and geophysical investigations. The Remedial Investigation Report for the site was completed in 2010; however, it was decided that a pond at the facility would be considered as a separate, unrelated AOC, which required updating the RI. Additional monitoring wells have been installed to the north and west of the BARC 12 AOC to further delineate the extent of groundwater contaminant plumes. A final RI report was submitted to the EPA in May 2017 and approved by EPA in 2018. Findings from the RI report will be incorporated into a Feasibility Study (FS) that will identify and evaluate potential remedies for the site. In 2018 a treatability study was completed to support the analysis of remedial options at the site, and a groundwater model to support FS findings. These materials are added to the FS report for the site. A Proposed Plan will be developed based on the conclusions of the FS. See Section 2.2.4 for more detailed discussion.	RI/FS Process ongoing	N
BARC 14	Airport Mixing Pad	SSP sampling and human health risk screen completed in conjunction with BARC 37. Human health requirements included delineation of pesticides and TPH in soil to prepare for a removal action onsite (11/01). Draft follow-on work plan submitted to EPA (03/03). Follow-on sampling was completed, and the draft report submitted to EPA Region III (07/04) in conjunction with another Airport AOC. Elevated levels of manganese were also detected in groundwater, and a study was completed and accepted by EPA that determined that the presence of manganese was naturally occurring (10/06). Supplemental investigations for the Airport AOCs, including groundwater investigations, were completed and a report submitted (10/07) for EPA review. Ecological risks have been evaluated per a TM prepared for the site (03/09). A removal action was completed in 2010 to address pesticide contamination. A Decision Document has been prepared and accepted (08/12), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
BARC 15	Airport Test Droplet Area	SSP sampling and human health risk screen completed. Additional soil and groundwater sampling required for human health to characterize contamination and determine the source of MCPP in groundwater (03/02). Internal work plan prepared, submitted, and approved in conjunction with another Airport AOC. Follow-on sampling has been completed, and the draft report was submitted to EPA Region III (07/04) in conjunction with another Airport AOC. Supplemental investigations completed for the Airport AOCs (10/07). Groundwater investigations were performed in 2011 and 2012 to address EPA Region III concerns about VOC and herbicide contamination. An MCL exceedance was noted in 2015 that required further evaluation. This evaluation consisted of a treatability study that included the installation and monitoring of a down well system to capture and retain contaminants. Sampling of monitoring wells in 2017 has indicated that TCE remains above MCLs in one well. Further evaluation and discussions will be completed between EPA and ARS in 2019 to determine next steps.	Further Action for Human Health	N

Appendix A Current AOC Status Summary – April 2019				
AOC ID	**AOC Name**	**Investigation, Cleanup, and Reporting Status[1]**	**Further Action**	**Decision Document Issued?**
BARC 17	B-064 Scrap Area	SSP sampling and human health risk screen completed. Debris removal completed. NFA for human health (11/01). NFA for ecological risks per a TM prepared for the site (3/09). A Decision Document has been prepared and accepted (08/09), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
BARC 18	Low-Level Radiation Burial Site	Investigated under Nuclear Regulatory Commission (NRC) purview. Monitoring wells were installed and sampled for VOCs and radiological parameters. Waste Characterization Survey (WCS) Work Plan completed (11/04), and several disposal pits excavated as part of that activity. The WCS Report was issued (08/07), and an updated DP was submitted (10/08) and approved by NRC. The source removal was completed following the NRC approved DP in August 2014. The final status surveys (FSS) has been completed in advance of backfilling and site restoration. Following approval of the FSS by the NRC the excavated area will be investigated for any potential remaining COCs from chemical disposition under the CERCLA process and EPA oversight. See Section 2.2.2 for more detailed discussion.	Further Action for Human Health	N
BARC 19	Trenches Behind B-029	SSP sampling and human health risk screen completed. Associated with the BARC 4 AOC, additional soil sampling required for human health to determine whether dieldrin concentrations continue to increase from west to east outside the AOC boundary (03/01). Follow-on sampling and reporting completed (11/12/02). Further delineation activity has been completed (11/05), with supplemental sampling completed to evaluate ecological risks (09/06), and a small mammal bioavailability study (10/08). A removal action was completed in 2011 to address elevated concentrations of pesticides in soil at this site. A bench scale bioavailability study was initiated in 2011. Based on results, a small plot pilot study was implemented in 2012 to evaluate the efficacy of different soil amendments. Studies are being completed in several phases and will be continuing through 2019. Due to the ongoing and complex nature of the investigations at this site, EPA and ARS have recently agreed to move this site (including the BARC 4 AOC) into a full CERCLA RI/FS. The RI will incorporate all previous remedial and investigation data and findings for the site and evaluate remedies to address remaining human and ecological risks. See Section 2.2.8 for further discussion.	Further Action for Human Health and Ecological Risk	N
BARC 22	College Park Landfill	CERCLA Remedial Investigation completed and finalized (02/08). The Pilot Study monitoring program was completed (06/08) and finalized in 2009 detailing the results from a three-year field study for vegetative landfill biocovers. NFA for ecological risks per a TM prepared for the site (03/09). The FS was issued (09/09) and finalized. Annual groundwater monitoring continues at this site. A Proposed Plan is anticipated in 2019, recommending the use of biologically active landfill cover. See Section 2.2.3 for more detailed discussion.	Further Action for Human Health	N
BARC 26	Dump off Poultry Road	SSP sampling and human health risk screen completed. CERCLA Removal Action completed. NFA for human health (3/21/01). Ecological risks have been evaluated per a TM prepared for the site (03/09). A Decision Document has been prepared and accepted (01/08), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y

Appendix A Current AOC Status Summary – April 2019				
AOC ID	**AOC Name**	**Investigation, Cleanup, and Reporting Status[1]**	**Further Action**	**Decision Document Issued?**
BARC 27	Beaver Dam Road Landfill	Draft Remedial Investigation report completed and finalized by EPA (03/08). Feasibility Study completed and finalized (07/08). Based on the FS, EPA and ARS have selected a "biowall" remedy to address VOC contamination in groundwater. NFA for ecological risks per a TM prepared for the site (3/09). The Proposed Plan was issued (07/09), a public meeting held (07/09), and a Record of Decision (ROD) has been finalized (09/09). The installation of the biowall was completed during the summer of 2013. A Performance Monitoring Plan has been developed to guide data collection activities used for the EPA 5-Year review. Performance monitoring reports are being submitted on a quarterly basis, and biowall monitoring is ongoing. The four-year performance review was submitted to EPA in March of 2018. The EPA Five-Year Review has been completed andissued in June 2018. Performance monitoring is ongoing, and includes plans to install an upgradient trench to improve performance by adding an additional carbon source and adjust pH within the biowall. See Section 2.2.5 for more detailed discussion.	Further Action for Human Health	N
BARC 30	Chemical Storage Shed Behind Water Tower	SSP sampling and human health risk screen completed. Debris removal completed. NFA for human health (01/02). Ecological risks have evaluated per a TM prepared for the site (03/09). A Decision Document was prepared (08/10), and an updated and revised closeout report was accepted by EPA (07/17), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
BARC 31	B-442 Scrap Area	SSP sampling and human health risk screen completed. Debris removal completed. Further sampling to characterize various site contaminants required for human health (11/01). Characterization sampling program completed, cleanup goals established, and an EE/CA has been prepared. NTCRA completed to address PCB, SVOC, and pesticide contamination (9/06). After-action report submitted (02/07). The cleanup has addressed both human and ecological risks, and EPA concurs with final closeout under CERCLA. A Decision Document has been prepared and accepted (08/10), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y

Appendix A Current AOC Status Summary – April 2019				
AOC ID	**AOC Name**	**Investigation, Cleanup, and Reporting Status[1]**	**Further Action**	**Decision Document Issued?**
BARC 32	Former PCB Storage Area and DNAPL investigation	SSP sampling and human health risk screening has been completed. Debris removal completed. Further sampling to characterize PCB and other site contaminants was required for human health (11/01). Further sampling completed (04/02) to evaluate airborne and surface soil contamination. Characterization sampling program completed, and a time critical removal action (TCRA) was completed (August 2004), involving the excavation and proper disposal of over 9000 cubic yards of PCB contaminated soil and site restoration. Elevated levels of manganese were also detected in groundwater, and EPA requested further evaluation. A study was completed and accepted by EPA that determined that the presence of manganese was naturally occurring (10/06). Four groundwater monitoring wells were installed because of a ground water investigation. An After-Action Report was submitted (01/08). A subsequent Geoprobe® groundwater investigation was completed to further delineate the contamination plume and the After-Action Report was submitted (08/08). The investigation determined that a chlorinated plume from an undetermined source was present underlying the site. A site characterization study was completed in 2013, and the study data used to initiate a Treatability Study in 2014. The Treatability Study observed the efficacy of a proprietary remedial technology in removing groundwater contaminants at the site. Additional delineation sampling has determined that the VOC plume has migrated offsite. The additional sampling, completed in 2018, included offsite downgradient sampling, the installation and sampling of offsite monitoring wells, pore water sampling, and surface water sampling. Although risks from direct contact with soil contaminants have been addressed, due to the large volume of data and reports already produced for this site, in 2017 EPA and ARS agreed to move this site into a full CERCLA RI/FS. The RI incorporates all previous remedial and investigation data and findings for the site, and evaluate remedies to address remaining human and ecological risks. The draft RI has been prepared and is under review. See Section 2.2.7 for further discussion.	Further Action for Human Health and Ecological Risk	N
BARC 34	Fill Area Behind B-537	SSP sampling and human health risk screen completed. Debris removal completed. Human health considerations included additional sampling to confirm and characterize elevated metals in groundwater, and test pit excavations to investigate an anomaly detected during and electromagnetic survey (03/02). Elevated levels of manganese were also detected in groundwater, and EPA requested further evaluation. A study was completed and accepted by EPA that determined that the presence of manganese was naturally occurring (10/06). Follow-on investigation completed. NFA for human health (02/03). NFA for ecological risks per a TM prepared for the site (3/09). A Decision Document has been prepared and accepted (08/10), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y

Appendix A Current AOC Status Summary – April 2019				
AOC ID	**AOC Name**	**Investigation, Cleanup, and Reporting Status[1]**	**Further Action**	**Decision Document Issued?**
BARC 34A	Fill Area Behind B-537	SSP sampling and human health risk screen completed. Debris removal completed. Human health considerations included resampling groundwater at one location to confirm elevated metals concentrations, evaluating sampling conditions, which may have led to non-representative analytical results during the original SSP field program, and excavating test pits to investigate an anomaly detected during and electromagnetic survey (03/02). Elevated levels of manganese were also detected in groundwater, and EPA requested further evaluation. A study was completed and accepted by EPA that determined that the presence of manganese was naturally occurring (10/06). Follow-on investigation completed. NFA for human health (02/03). NFA for ecological risks per a TM prepared for the site (3/09). A Decision Document has been prepared and accepted (08/10), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
BARC 35	Chicken Hill	SSP sampling and human health risk screen completed. Debris removal completed. NFA for human health (01/02). Ecological risks have been evaluated per a TM prepared for the site (03/09). A Decision Document has been prepared and accepted (08/10), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
BARC 36	Airport Scrap Pile	SSP sampling and human health risk screen completed. Debris removal completed. Pesticide delineation and potential removal action required for human health (03/01). Draft follow-on work plan submitted to EPA and approved (01/02). Follow-on sampling completed, and draft report was submitted to EPA (07/04) in conjunction with other Airport AOCs. Supplemental investigations for the Airport AOCs, including wetland sampling and groundwater investigations were completed and a report submitted for EPA review (10/07). Ecological risks have been evaluated per a TM prepared for the site (03/09). A NTCRA was conducted in 2010 to address pesticide contamination. A Decision Document has been prepared and accepted (08/12), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
BARC 37	Waste Oil Pit	SSP sampling and human health risk screen completed in conjunction with BARC 14. Human health requirements include delineation of pesticides and TPH in soil, and metals in groundwater (11/01). Draft follow-on work plan submitted to EPA in March 2002, and approved by EPA with modification (6/12/02). Follow-on sampling has been completed, and the draft report was submitted to EPA Region III (07/04) in conjunction with other Airport AOCs. Supplemental investigations for the Airport AOCs, including wetland sampling, and groundwater investigations, were completed and a report submitted for EPA review (10/07). Ecological risks have been evaluated per a TM prepared for the site (03/09). A NTCRA was conducted in 2010 to address pesticide contamination in soil. A Decision Document has been prepared and accepted (08/12), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y

Appendix A Current AOC Status Summary – April 2019				
AOC ID	**AOC Name**	**Investigation, Cleanup, and Reporting Status[1]**	**Further Action**	**Decision Document Issued?**
BARC 41	Underground Storage Tank at B-312	SSP sampling and human health risk screen completed. Additional groundwater sampling was required for human health risk screening to confirm PCB and PAH detections and determine the presence or absence of downgradient groundwater contaminants (01/01). The additional sampling was completed in February 2001. PCB detections were not confirmed, and PAHs were determined to be petroleum-related. NFA for non-radiological (03/01) and radiological (09/03) parameters for human health. Elevated levels of manganese were also detected in groundwater, and EPA requested further evaluation. A study was completed and accepted by EPA that determined that the presence of manganese was naturally occurring (10/06). Ecological risks have been evaluated per a TM prepared for the site (03/09). A Decision Document has been prepared and accepted (08/09), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
BARC 44	Dump in Woods at Airport	SSP sampling and human health risk screen completed. Debris removal completed. NFA for human health (09/01). Ecological risks have evaluated per a TM prepared for the site (03/09). A Decision Document has been prepared and accepted (08/10), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
EPIC 7	Open Storage	SSP sampling and human health risk screen completed. NFA for human health (03/01). Ecological risks have been evaluated per a TM prepared for the site (03/09). Field sampling conducted in 01/10 to verify the presence of lead in surface soils. Further delineation sampling was conducted in 2011 and 2014 that identified SVOCs and metals in surface and subsurface soils related to former coal storage activities. A total of 4 monitoring wells have been installed to evaluate the potential source and magnitude of groundwater contamination to provide a better understanding of groundwater migration, and fate and transport mechanisms at the site, although no contaminants of concern have been identified. Due to the ongoing investigations at this site, EPA and ARS have agreed to move this site (including the EPIC 8 AOC) into a full CERCLA RI/FS. The RI will incorporate all previous remedial and investigation data and findings for the site, and evaluate remedies to address remaining human and ecological risks. See section 2.2.6 for more detailed discussion.	Further Action for Human Health and Ecological Risk	N

Appendix A Current AOC Status Summary – April 2019				
AOC ID	**AOC Name**	**Investigation, Cleanup, and Reporting Status[1]**	**Further Action**	**Decision Document Issued?**
EPIC 8	Open Storage	SSP sampling and human health risk screen completed. NFA for human health (01/01). Ecological risks have been evaluated per a TM prepared for the site (03/09). Further delineation sampling was conducted in 2011 and 2014 that identified SVOCs and metals in surface and surface soils related to former coal storage activities. A total of 4 monitoring wells have been installed to evaluate the potential source and magnitude of groundwater contamination to provide a better understanding of groundwater migration, and fate and transport mechanisms at the site, although no contaminants of concern have been identified. Due to the ongoing investigations at this site, EPA and ARS have agreed to move this site (including the EPIC 7 AOC) into a full CERCLA RI/FS. The RI will incorporate all previous remedial and investigation data and findings for the site and evaluate remedies to address remaining human and ecological risks. See section 2.2.6 for more detailed discussion.	Further Action for Human Health and Ecological Risk	N
EPIC 9	Open Storage	SSP sampling and human health risk screen completed. NFA for human health (01/01). NFA for ecological risks per a TM prepared for the site (3/09). A Decision Document has been prepared and accepted (08/09), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
EPIC 11	Open Storage	SSP sampling and human health risk screen completed. A draft follow-on work plan was submitted to EPA in September 2001. NFA for non-radiological (03/01) and radiological (09/03) parameters for human health. Elevated levels of manganese were also detected in groundwater, and EPA requested further evaluation. A study was completed and accepted by EPA that determined that the presence of manganese was naturally occurring (10/06). NFA for ecological risks per a TM prepared for the site (3/09). A Decision Document has been prepared and accepted (08/09), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
EPIC 16	Disposal/Fill Area	SSP sampling and human health risk screen completed (04/01). Debris removal completed. It is likely that a groundwater contamination plume originating at the upgradient W. P. Ballard property is the source of chlorinated solvents detected in the earlier SSP investigation. An updated SSP sampling report has been prepared that incorporates data from joint sampling at BARC 6 and Ballard Property monitoring wells from 2010, 2012, and 2014, and findings from the BARC 6 Groundwater Modeling report to confirm sources. A Decision Document will be prepared for the EPIC 16 AOC upon EPA approval of the updated SSP report.	NFA for Human Health NFA for Ecological Risk	N
EPIC 21	Open Storage	SSP sampling and human health risk screen completed. NFA for human health (11/01). A Decision Document has been prepared and accepted (08/10), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y

Appendix A Current AOC Status Summary – April 2019				
AOC ID	**AOC Name**	**Investigation, Cleanup, and Reporting Status[1]**	**Further Action**	**Decision Document Issued?**
EPIC 23	Undetermined	SSP sampling and human health risk screen completed. NFA for human health (09/01). A Decision Document has been prepared and accepted (08/10), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
EPIC 31	Disposal/Fill Area	SSP sampling and human health risk screen completed. Debris removal completed. Limited additional surface soil sampling and removal required for human health, due to elevated lead concentrations in soil (06/01). Follow-on sampling completed (12/02). Additional delineation has been completed, and a letter report submitted to EPA Region III (03/05). EPA requested additional investigations to determine the nature of the filled area at the site, which determined that the area was not a landfill, and that no further remedial actions were needed (10/08). Ecological risks have evaluated per a TM prepared for the site (03/09). A Decision Document has been prepared (08/12), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
EPIC 34	Disposal/Fill Area	SSP sampling and human health risk screen completed. Debris removal completed. Additional sampling required for human health to verify elevated metals detections in a filtered groundwater sample (6/5/01). Draft follow-on work plan submitted to EPA (09/01). Elevated levels of manganese were also detected in groundwater, and EPA requested further evaluation. A study was completed and accepted by EPA that determined that the presence of manganese was naturally occurring (10/06). Ecological risks have been evaluated per a TM prepared for the site (03/09). Field sampling was conducted to assess ecological risks associated with the presence of elevated levels of selenium in surface soils (01/10) with subsequent agreement on NFA for human health. A Decision Document has been prepared (08/12), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
EPIC 39	Disposal/Fill Area	SSP sampling and human health risk screen completed. Further evaluation of chromium in soils may be required for human health (01/02). After a January 2002 meeting with EPA, it was discovered that the hazard quotient associated with chromium was calculated incorrectly in the human health risk screening report, and reported as 57 instead of 5.7. Follow-on sampling requested by EPA failed to identify hexavalent chromium concentrations at the AOC, and resulted in a determination of NFA for human health (02/03). Ecological risks have evaluated per a TM prepared for the site (03/09). A Decision Document has been prepared (08/10), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y

Appendix A Current AOC Status Summary – April 2019				
AOC ID	**AOC Name**	**Investigation, Cleanup, and Reporting Status[1]**	**Further Action**	**Decision Document Issued?**
EPIC 47	Undetermined	SSP sampling and human health risk screen completed. Additional human health requirements include delineation of dieldrin in soil and MCPP in groundwater, and testing for byproducts of MCPP production in groundwater (09/01). Draft follow-on work plan submitted to EPA in (03/02). Follow-on sampling has been completed, and the draft report was submitted to EPA Region III (07/04) in conjunction with another Airport AOC. Supplemental investigations were completed for the Airport AOCs (10/07). NFA for ecological risks per a TM prepared for the site (3/09). Groundwater investigations were performed in 2011 and 2012 to address EPA Region III concerns about VOC and herbicide contamination. An MCL exceedance was noted that required further evaluation. This evaluation consisted of a treatability study that included the installation and monitoring of a down well system to capture and retain contaminants. Sampling of monitoring wells in 2017 has indicated that TCE remains above MCLs in one well. Further evaluation and discussions will be completed between EPA and ARS in 2019 to determine next steps.	Further Action for Human Health	N
FDA 1	Overgrown Clearing on Edge of Woods and Animal Pen	SSP sampling and human health risk screen completed. Debris removal completed. NFA for human health (09/01). NFA for ecological risks per a TM prepared for the site (3/09). A Decision Document has been prepared and accepted (08/10), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
FDA 2	Wooded Area	SSP sampling and human health risk screen completed. Debris removal completed. Review of analytical data and limited re-collection of SSP samples required for human health to verify elevated metals detections (06/01). Follow-on sampling completed (12/02) with subsequent EPA agreement to conduct cleanup for lead. Cleanup goals were developed, and an EE/CA completed (11/05) to evaluate remedial options to complete the cleanup as a NTCRA. NTCRA completed and After-Action Report was finalized in 2009. A study was completed and accepted by EPA that determined that the presence of manganese was naturally occurring (10/06). A Decision Document has been prepared (08/10) and accepted (08/10), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y Pending EPA concurrence
ENTECH 3	Public Fueling Station	SSP sampling and human health risk screen completed. Geophysical survey completed in 1998. NFA for human health (01/02). NFA for ecological risks per a TM prepared for the site (3/09). A Decision Document has been prepared and accepted (08/09), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y

Appendix A Current AOC Status Summary – April 2019				
AOC ID	**AOC Name**	**Investigation, Cleanup, and Reporting Status[1]**	**Further Action**	**Decision Document Issued?**
ENTECH 7	Open Storage Yard	SSP sampling and human health risk screen completed. Debris removal completed. Additional soil and groundwater sampling required for human health to delineate VOCs, SVOCs, and TPH (DRO) (03/02). Follow-on work plan submitted to EPA (04/02). Field work completed, and a report submitted to EPA Region III (02/05). Partial non-CERCLA removal (tarry wastes) completed in 2005. Elevated levels of manganese were also detected in groundwater, and EPA requested further evaluation. A study was completed and accepted by EPA that determined that the presence of manganese was naturally occurring (10/06). Eleven monitoring wells were installed and sampled to further delineate and characterize the soil and groundwater, and a report submitted (07/08). Ecological risks were evaluated per a TM prepared for the site (03/09). Observed groundwater contamination was the subject of an additional investigation in 2011 that identified an upgradient source. An After-Action Report was prepared; however, reports and data remain under review by EPA. Due to the ongoing investigations at this site, EPA and ARS are considering moving this site into a full CERCLA RI/FS. Further discussions between EPA and ARS will determine if an RI/FS approach is needed. A potentially responsible party is located upgradient of the site.	Further Action for Human Health	N
ENTECH 15	Underground Storage Tank (UST) Removal	SSP sampling and human health risk screen completed. Additional human health requirements include delineation of pesticides and PAHs in surface soil, VOCs, and SVOCs in groundwater (09/01). Draft follow-on work plan submitted to EPA Region III (03/02). Follow-on field work completed, and a report submitted to EPA Region III (10/05). Further soil and groundwater investigations completed to attempt to identify sources. EPA has agreed with recommendation for NFA for human health (10/07). Ecological risks were evaluated per a TM prepared for the site (03/09). A Decision Document has been prepared and accepted (08/10), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
ENTECH 20	Runway Destruction Activity	SSP sampling and human health risk screen completed. Additional sampling required for human health to confirm elevated cadmium and lead levels detected in a filtered groundwater sample (09/01). Follow-on sampling completed but failed to confirm presence of elevated levels of contamination in groundwater. Follow-on report reviews with EPA resulted in NFA for human health (02/03). NFA for ecological risks per a TM prepared for the site (3/09). A Decision Document has been prepared and accepted (08/10), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
ENTECH M6	B-029 Service Yard	SSP sampling and human health risk screen completed. Transfer AOC to BARC UST program; NFA for human health (03/01). NFA for ecological risks per a TM prepared for the site (3/09). A Decision Document has been prepared and accepted (08/09), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
ENTECH M12	Woodland Scarring/ Clearing	SSP sampling and human health risk screen completed. Debris removal completed. NFA for human health (06/01). NFA for ecological risks per a TM prepared for the site (3/09). A Decision Document has been prepared and accepted (08/09), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y

Appendix A Current AOC Status Summary – April 2019				
AOC ID	**AOC Name**	**Investigation, Cleanup, and Reporting Status[1]**	**Further Action**	**Decision Document Issued?**
ENTECH M16	Possible Excavation Site	SSP sampling and human health risk screen completed. NFA for human health (09/01). NFA for ecological risks per a TM prepared for the site (3/09). A Decision Document has been prepared and accepted (08/09), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
ENTECH M22	Possible Fill Area	SSP sampling and human health risk screen completed. Debris removal completed. NFA for human health (11/01). NFA for ecological risks per a TM prepared for the site (3/09). A Decision Document has been prepared and accepted (08/09), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
ENTECH M23	Fill Area	SSP sampling and human health risk screen completed in conjunction with BARC 10. Pipe investigation completed. NFA for human health (01/01). NFA for ecological risks per a TM prepared for the site (3/09). A Decision Document has been prepared and accepted (08/09), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
ENTECH M26	Shooting Range	SSP sampling and human health risk screen completed. CERCLA action to address human health risk pending site closure and coordination with the ERA (11/01). Work plan developed to immobilize lead in soil with the assistance of ARS experts (06/02) as an interim measure to prevent exposure and migration. Soil Stabilization for 25-yard Gun Range completed (07/05). Work was completed, and an After-Action Report was finalized in 2009. A Closeout Report has been prepared (01/12). An updated Decision Document is being prepared for EPA confirmation and signature. NFA under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y Pending EPA concurrence
ENTECH R1	Structural Ruin	SSP sampling and human health risk screen completed. Debris removal completed. Follow-on soil sampling completed for human health in order to delineate elevated levels of Aroclor-1254 and lead in soil (09/01). Discussions with EPA in the follow-on report (12/02) resulted in agreement to cleanup lead and PCBs in soil. Cleanup goals developed, and an EE/CA completed to evaluate remedial options for a NTCRA. NTCRA to address soils completed (07/07). PCB contaminated concrete foundation has been addressed (10/08). A Decision Document has been prepared and accepted (08/10), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
ENTECH R2	NASA Laser Test Mast	Media sampling completed (KCI, 1997). Debris removal completed (Personal Communication, 2001). Letter report including human health risk screen submitted to EPA (04/02). NFA for human health (09/02). Ecological risks evaluated per a TM prepared for the site (03/09). An updated Decision Document has been prepared for EPA confirmation and signature.	NFA for Human Health NFA for Ecological Risk	Y Pending EPA concurrence
ENTECH R3	Possible Disposal Area	SSP sampling and human health risk screen completed. Debris Removal Action completed. NFA for human health (06/01). NFA for ecological risks per a TM prepared for the site (3/09). A Decision Document has been prepared and accepted (08/09), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y

Appendix A Current AOC Status Summary – April 2019				
AOC ID	**AOC Name**	**Investigation, Cleanup, and Reporting Status[1]**	**Further Action**	**Decision Document Issued?**
ENTECH R5	Building Remains and Debris	SSP sampling and human health risk screen completed. NFA for human health (06/01). NFA for ecological risks per a TM prepared for the site (3/09). A Decision Document has been prepared and accepted (08/09), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
ENTECH R13	Surface Disposal	SSP sampling and human health risk screen completed. NFA for human health (09/01). NFA for ecological risks per a TM prepared for the site (3/09). A Decision Document has been prepared and accepted (08/09), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
ENTECH R15	Surface Dumping Area	SSP sampling and human health risk screen completed. Debris removal completed. NFA for human health (01/02). NFA for ecological risks per a TM prepared for the site (3/09). A Decision Document has been prepared and accepted (08/10), and the site has been removed from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y
ENTECH R23	Rose Garden site	SSP sampling and human health risk screen completed. Additional follow-on sampling was required for human health to delineate DDx in soil and determine whether it has migrated to groundwater (01/02). Follow-on sampling completed and a report submitted to EPA Region III (03/03). EPA Region III agreed on need for soil cleanup; however, further delineation was required. Additional sampling to complete delineation completed (03/05, 11/05, and 06/07), and a report detailing the delineation effort completed. Ecological risks were evaluated per a TM prepared for the site (07/08). An EE/CA for potential remedial actions completed (12/08) and an NTCRA to address human and ecological risks from contaminated soil was completed in 2009. A Decision Document has been prepared (08/12). An updated Decision Document has been prepared for EPA confirmation and signature.	NFA for Human Health NFA for Ecological Risk	Y Pending EPA concurrence
BHNRC[6]	Beltsville Human Nutrition Research Center	SSP sampling and human health risk screen completed. Human health risk screen submitted to EPA (04/02). Elevated levels of manganese also detected in groundwater, and EPA requested further evaluation. A study was completed and accepted by EPA that determined that the presence of manganese was naturally occurring (10/06). NFA for ecological risks per a TM prepared for the site (3/09). Decision Document was prepared and accepted (08/09), and the site has been removed from further CERCLA consideration.	NFA for Human Health NFA for Ecological Risk	Y
Building 421[6]	Transformer Storage Area	SSP sampling for human health risk screening and to delineate the extent of DDx contamination in soil completed (06/06). An EE/CA for potential remedial actions was completed (03/08) and a NTCRA to address contaminated soil was completed in 2009. A Decision Document will be prepared to eliminate this AOC from further consideration under CERCLA.	NFA for Human Health NFA for Ecological Risk	Y Pending EPA concurrence

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AOC ID	**AOC Name**	**Investigation, Cleanup, and Reporting Status[1]**	**Further Action**	**Decision Document Issued?**
CSWRP[6]	Composting Storm Water Retention Pond	AOC added due to a determination in 2009 that the storm water retention pond previously associated with the Chemical Disposal Pits (BARC 12) was unrelated to the BARC 12 site. By agreement, the CSWRP is undergoing a separate evaluation using the established SSP. Investigations were completed in 2014 to evaluate the toxicity of sediments within the CSWRP to ecological receptors. A separate SSP human health evaluation was completed in 2017. EPA has indicated agreement with an NFA designation. A Decision Document is being prepared for the site.	NFA for Human Health NFA for Ecological Risk	Y Pending EPA concurrence
Beltsville Bog[6]	Pesticides North of Utility Corridor	AOC added due to the discovery of dieldrin contamination in soil associated with the BARC 36 AOC. Several sampling events (05/12) have been conducted to characterize and delineate the extent of contamination that borders a wetland area. Further discussions with EPA will determine whether any additional mitigation is necessary.	Further Action for Human Health and Ecological Risk	N

Notes:

1. Including the four RI/FS sites and the Low Level Radiation Burial Site (BARC 18), ARS and EPA have agreed that all human health and ecological risks under CERCLA have been addressed at 42 (of 63) AOCs and are considered as No Further Action sites and Decision Documents issued. Decision Documents for 6 additional AOCs are being reviewed by EPA. Remaining AOCs (15) will not be closed out until AOC-specific investigations have been completed, remedial activities completed, or No Further Action is agreed by both ARS and EPA.
2. "SSP sampling and human health risk screen completed" refers only to the collection of samples specified in the original SSP work plans, and associated human health risk screening report to EPA. It does not include additional SSP sampling and human health risk screening that may be required for a given AOC after EPA reviews the draft human health risk screening report, or sampling required to support the ERA.
3. "EPA" refers to EPA Region III.
4. Dates listed are meeting dates between USDA-ARS and EPA Region III during which draft SSP human health risk screening reports and/or draft SSP follow-on work plans were reviewed.
5. "NFA" indicates "no further action." However, submission of additional information about a given AOC to EPA may be required before it is closed out under the SSP human health risk screening process, even if the AOC has been designated "NFA."
6. AOC was added after the initial AOC identification effort (post-2000) from data and other events that recognized the location as an AOC. Site added to CERCLA SSP program with EPA concurrence.